NASA

Aerospace Medicine and Biology A Continuing Bibliography

National Aeronautics and Space Administration

CASE FILE COPY

Aerospace Medicine & Biology & Biology Aerospace Medicine edicine & Biology Aerospace N space Medicine & Biology Aer logy Aerospace Medicine & Bio ine & Biology Aerospace Medic ce Medicine & Biology Aerospa Aerospace Medicine & Biology & Biology Aerospace Medicine ledicine & Biology Aerospace N space Medicine & Biology Aer logy Aerospace Medicine & Bio

ACCESSION NUMBER RANGES

Accession numbers cited in this Supplement fall within the following ranges.

STAR (N-10000 Series) N80-14017 - N80-16022

IAA (A-10000 Series) A80-17361 - A80-21040

This bibliography was prepared by the NASA Scientific and Technical Information Facility operated for the National Aeronautics and Space Administration by Informatics Information Systems Company.

AEROSPACE MEDICINE AND BIOLOGY

A CONTINUING BIBLIOGRAPHY WITH INDEXES

(Supplement 205)

A selection of annotated references to unclassified reports and journal articles that were introduced into the NASA scientific and technical information system and announced in March 1980 in

- Scientific and Technical Aerospace Reports (STAR)
- International Aerospace Abstracts (IAA).

NASA SP-7011 and its supplements are available from the National Technical Information Service (NTIS). Questions on the availability of the predecessor publications, Aerospace Medicine and Biology (Volumes I - XI) should be directed to NTIS.

This Supplement is available from the National Technical Information Service (NTIS), Springfield, Virginia 22161, at the price \$7.00 domestic; \$14.00 foreign.

INTRODUCTION

This Supplement to Aerospace Medicine and Biology (NASA SP-7011) lists 212 reports, articles and other documents announced during March 1980 in Scientific and Technical Aerospace Reports (STAR) or in International Aerospace Abstracts (IAA). The first issue of the bibliography was published in July 1964; since that time, monthly supplements have been issued.

In its subject coverage, Aerospace Medicine and Biology concentrates on the biological, physiological, psychological, and environmental effects to which man is subjected during and following simulated or actual flight in the earth's atmosphere or in interplanetary space. References describing similar effects of biological organisms of lower order are also included. Such related topics as sanitary problems, pharmacology, toxicology, safety and survival, life support systems, exobiology, and personnel factors receive appropriate attention. In general, emphasis is placed on applied research, but references to fundamental studies and theoretical principles related to experimental development also qualify for inclusion.

Each entry in the bibliography consists of a bibliographic citation accompanied in most cases by an abstract. The listing of the entries is arranged in two major sections: IAA Entries and STAR Entries, in that order. The citations, and abstracts when available, are reproduced exactly as they appeared originally in IAA or STAR, including the original accession numbers from the respective announcement journals. This procedure, which saves time and money, accounts for the slight variation in citation appearances.

Two indexes -- subject and personal author -- are included.

An annual index will be prepared at the end of the calendar year covering all documents listed in the 1980 Supplements.

AVAILABILITY OF CITED PUBLICATIONS

IAA ENTRIES (A80-10000 Series)

All publications abstracted in this Section are available from the Technical Information Service, American Institute of Aeronautics and Astronautics, Inc. (AIAA), as follows: Paper copies of accessions are available at \$7.00 per document up to a maximum of 40 pages. The charge for each additional page is \$0.25. Microfiche (1) of documents announced in IAA are available at the rate of \$3.00 per microfiche on demand, and at the rate of \$1.25 per microfiche for standing orders for all IAA microfiche. The price for the IAA microfiche by category is available at the rate of \$1.50 per microfiche plus a \$1.00 service charge per category per issue. Microfiche of all the current AIAA Meeting Papers are available on a standing order basis at the rate of \$1.50 per microfiche.

Minimum air-mail postage to foreign countries is \$1.00 and all foreign orders are shipped on payment of pro-forma invoices.

All inquiries and requests should be addressed to AIAA Technical Information Service. Please refer to the accession number when requesting publications.

STAR ENTRIES (N80-10000 Series)

One or more sources from which a document announced in *STAR* is available to the public is ordinarily given on the last line of the citation. The most commonly indicated sources and their acronyms or abbreviations are listed below. If the publication is available from a source other than those listed, the publisher and his address will be displayed on the availability line or in combination with the corporate source line.

Avail: NTIS. Sold by the National Technical Information Service. Prices for hard copy (HC) and microfiche (MF) are indicated by a price code followed by the letters HC or MF in the STAR citation. Current values for the price codes are given in the tables on page vii

Documents on microfiche are designated by a pound sign (#) following the accession number. The pound sign is used without regard to the source or quality of the microfiche.

Initially distributed microfiche under the NTIS SRIM (Selected Research in Microfiche) is available at greatly reduced unit prices. For this service and for information concerning subscription to NASA printed reports, consult the NTIS Subscription Section, Springfield, Va. 22161.

NOTE ON ORDERING DOCUMENTS: When ordering NASA publications (those followed by the * symbol), use the N accession number. NASA patent applications (only the specifications are offered) should be ordered by the US-Patent-Appl-SN number. Non-NASA publications (no asterisk) should be ordered by the AD, PB, or other *report* number shown on the last line of the citation, not by the N accession number. It is also advisable to cite the title and other bibliographic identification.

Avail: SOD (or GPO). Sold by the Superintendent of Documents, U.S. Government Printing Office, in hard copy. The current price and order number are given following the availability line. (NTIS will fill microfiche requests, at the standard \$3.50 price, for those documents identified by a # symbol.)

⁽¹⁾ A microfiche is a transparent sheet of film, 105 by 148 mm in size, containing as many as 60 to 98 pages of information reduced to micro images (not to exceed 26:1 reduction).

- Avail: NASA Public Document Rooms. Documents so indicated may be examined at or purchased from the National Aeronautics and Space Administration, Public Documents Room (Room 126), 600 Independence Ave., S.W., Washington, D.C. 20546, or public document rooms located at each of the NASA research centers, the NASA Space Technology Laboratories, and the NASA Pasadena Office at the Jet Propulsion Laboratory.
- Avail: DOE Depository Libraries. Organizations in U.S. cities and abroad that maintain collections of Department of Energy reports, usually in microfiche form, are listed in *Energy Research Abstracts*. Services available from the DOE and its depositories are described in a booklet, *DOE Technical Information Center Its Functions and Services* (TID-4660), which may be obtained without charge from the DOE Technical Information Center.
- Avail: Univ. Microfilms. Documents so indicated are dissertations selected from *Dissertation Abstracts* and are sold by University Microfilms as xerographic copy (HC) and microfilm. All requests should cite the author and the Order Number as they appear in the citation.
- Avail: USGS. Originals of many reports from the U.S. Geological Survey, which may contain color illustrations, or otherwise may not have the quality of illustrations preserved in the microfiche or facsimile reproduction, may be examined by the public at the libraries of the USGS field offices whose addresses are listed in this introduction. The libraries may be queried concerning the availability of specific documents and the possible utilization of local copying services, such as color reproduction.
- Avail: HMSO. Publications of Her Majesty's Stationery Office are sold in the U.S. by Pendragon House, Inc. (PHI), Redwood City, California. The U.S. price (including a service and mailing charge) is given, or a conversion table may be obtained from PHI.
- Avail: BLL (formerly NLL): British Library Lending Division, Boston Spa, Wetherby, Yorkshire, England. Photocopies available from this organization at the price shown. (If none is given, inquiry should be addressed to the BLL.)
- Avail: Fachinformationszentrum, Karlsruhe. Sold by the Fachinformationszentrum Energie, Physik, Mathematik GMBH, Eggenstein Leopoldshafen, Federal Republic of Germany, at the price shown in deutschmarks (DM).
- Avail: Issuing Activity, or Corporate Author, or no indication of availability. Inquiries as to the availability of these documents should be addressed to the organization shown in the citation as the corporate author of the document.
- Avail: U.S. Patent and Trademark Office. Sold by Commissioner of Patents and Trademarks, U.S. Patent and Trademark Office, at the standard price of 50 cents each, postage free.
- Other availabilities: If the publication is available from a source other than the above, the publisher and his address will be displayed entirely on the availability line or in combination with the corporate author line.

SUBSCRIPTION AVAILABILITY

This publication is available on subscription from the National Technical Information Service (NTIS). The annual subscription rate for the monthly supplements, excluding the annual cumulative index, is \$65.00 domestic; \$130.00 foreign. All questions relating to the subscriptions should be referred to NTIS.

ADDRESSES OF ORGANIZATIONS

American Institute of Aeronautics and Astronautics Technical Information Service 555 West 57th Street, 12th Floor New York, New York 10019

British Library Lending Division, Boston Spa, Wetherby, Yorkshire, England

Commissioner of Patents and Trademarks U.S. Patent and Trademark Office Washington, D.C. 20231

Department of Energy Technical Information Center P.O. Box 62 Oak Ridge, Tennessee 37830

ESA-Information Retrieval Service ESRIN Via Galileo Galilei 00044 Frascati (Rome) Italy

Her Majesty's Stationery Office P.O. Box 569, S.E. 1 London, England

NASA Scientific and Technical Information Facility
P.O. Box 8757
B. W. I. Airport, Maryland 21240

National Aeronautics and Space Administration Scientific and Technical Information Branch (NST-41) Washington, D.C. 20546

National Technical Information Service 5285 Port Royal Road Springfield, Virginia 22161 Pendragon House, Inc. 899 Broadway Avenue Redwood City, California 94063

Superintendent of Documents U.S. Government Printing Office Washington, D.C. 20402

University Microfilms
A Xerox Company
300 North Zeeb Road
Ann Arbor, Michigan 48106

University Microfilms, Ltd. Tylers Green London, England

U.S. Geological Survey 1033 General Services Administration Building Washington, D.C. 20242

U.S. Geological Survey 601 E. Cedar Avenue Flagstaff, Arizona 86002

U.S. Geological Survey 345 Middlefield Road Menlo Park, California 94025

U.S. Geological Survey Bldg. 25, Denver Federal Center Denver, Colorado 80225

Fachinformationszentrum Energie, Physik, Mathematik GMBH 7514 Eggenstein Leopoldshafen Federal Republic of Germany

NTIS PRICE SCHEDULES

Schedule A

STANDARD PAPER COPY PRICE SCHEDULE

(Effective January 1, 1980)

Price	Page Range	North American	Foreign
Code		Price	Price
A01	Microfiche	\$ 3.50	\$ 5.25
A02	001-025	5.00	10.00
A03	026-050	6.00	12.00
A04	051-075	7.00	14.00
A05	076-100	8.00	16.00
A06	101-125	9.00	18.00
A07	126-150	10.00	20.00
A08	151-175	11,00	22.00
A09	176-200	12.00	24.00
A10	201-225	13.00	26.00
A11	226-250	14.00	28.00
A12	251-275	15.00	30.00
A13	276-300	16.00	32.00
A14	301-325	17.00	34.00
A15	326-350	18.00	36.00
A16	351-375	19.00	38.00
A17	376-400	20.00	40.00
A18	401-425	21.00	42.00
A19	426-450	22.00	44.00
A20	451-475	23.00	46.00
A21	476-500	24.00	48.00
A22	501-525	25.00	50.00
A23	526-550	. 26.00	52.00
A24	551-575	27.00	54.00
A25	576-600	28.00	56.00
A99	601-up	1/	2/
	55. ap	• • • • • • • • • • • • • • • • • • • •	-,

- 1/ Add \$1.00 for each additional 25 page increment or portion thereof for 601 pages up.
- 2/ Add \$2.00 for each additional 25 page increment or portion thereof for 601 pages and more.

Schedule E EXCEPTION PRICE SCHEDULE

Paper Copy & Microfiche

Price	North American	Foreign
Code	Price	Price
EO1	\$ 5.50	\$ 11.50
E02	6.50	13.50
E03	8.50	17.50
E04	10.50	21.50
E05	12.50	25.50
E06	14.50	29.50
E07	16.50	33.50
EO8	18.50	37.50
E09	20.50	41.50
E10	22.50	45.50
E11	24.50	49.50
E12	27.50	55.50
E13	30.50	61.50
E14	33.50	67.50
E15	36.50	73.50
E16	39.50	79.50
E17	42.50	85.50
E18	45.50	91.50
E19	50.50	100.50
E20	60.50	121.50
E99 - Write for quote		
NO1	28.00	40.00

TABLE OF CONTENTS

AA ENTRIES (A8	80-10000)	4
	N80-10000)	
•		
ubject Index		
_	ndex	-
cisoliai Autiloi i	nuex	····· I-2
TVI	NOAL CITATION AND ADOTDAGT FROM 674	
111	PICAL CITATION AND ABSTRACT FROM <i>Star</i>	
NASA SPONSORED DOCUMENT ————		— AVAILABLE OF MICROFICH
NASA ACCESSION	† †	MICROFICA
NUMBER -	N80-10800*# Life Systems, Inc., Cleveland, Ohio. ✓	CORPORATI
TITLE	EXTENDED DURATION ORBITER STUDY: CO2 REMOVAL	SOURC
AUTHORS	AND WATER RECOVERY Final Report R. D. Marshall, G. S. Ellis, F. H. Schubert, and R. A. Wynveen	
	May 1979 91 p refs	PUBLICATIO
REPORT	(Contract NAS9-15218)	DAT
NUMBER	→ (NASA-CR-160317; LSI-ER-319-24) Avail: NTIS HC A05/MF A01; CSCL 06K	CONTRAC
COSATI CODE	Two electrochemical depolarized carbon dioxide concentrator	OR GRAN
	subsystems were evaluated against baseline lithium hydroxide	AVAILABILI
	for (1) the baseline orbiter when expanded to accommodate a	SOUR
	crew of seven (mission option one), (2) an extended duration orbiter with a power extension package to reduce fuel cell	
	expendables (mission option two), and (3) an extended duration	
	orbiter with a full capability power module to eliminate fuel cell	
	expendables (mission option three). The electrochemical depolar- ized carbon dioxide concentrator was also compared to the solid	
	amine regenerable carbon dioxide removal concept. Water recovery	
	is not required for Mission Option One since sufficient water is	
	generated by the fuel cells. The vapor compression distillation subsystem was evaluated for mission option two and three only.	
	Weight savings attainable using the vapor compression distillation	
	subsystem for water recovery versus on-board water storage	
	were determined. Combined carbon dioxide removal and water	
	recovery was evaluated to determine the effect on regenerable carbon dioxide removal subsystem selection. R.E.S.	
	,	
т	VOICAL CITATION AND ADSTDACT COOM /AA	1
	YPICAL CITATION AND ABSTRACT FROM IAA	l
T NASA SPONSORED DOCUMENT ————	YPICAL CITATION AND ABSTRACT FROM IAA	
NASA SPONSORED DOCUMENT ———— AIAA ACCESSION		
NASA SPONSORED DOCUMENT	→ A80-12230 * Soil stabilization by a prokaryotic desert crust	TITL
NASA SPONSORED DOCUMENT ———— AIAA ACCESSION	A80-12230 * Soil stabilization by a prokaryotic desert crust Implications for Precambrian land biota. S. E. Campbell (Boston	
NASA SPONSORED DOCUMENT AIAA ACCESSION NUMBER	→ A80-12230 * Soil stabilization by a prokaryotic desert crust	TITL AUTHOR AFFILIATIO
NASA SPONSORED DOCUMENT AIAA ACCESSION NUMBER AUTHOR	A80-12230 * Soil stabilization by a prokaryotic desert crust - Implications for Precambrian land biota. S. E. Campbell (Boston University, Boston, Mass.). Origins of Life, vol. 9, Sept. 1979, p.	TITL AUTHOR' AFFILIATIO PUBLICATIO
NASA SPONSORED DOCUMENT AIAA ACCESSION NUMBER AUTHOR	A80-12230 * Soil stabilization by a prokaryotic desert crust Implications for Precambrian land biota. S. E. Campbell (Boston-University, Boston, Mass.). Origins of Life, vol. 9, Sept. 1979, p. 335-348. 24 refs. NSF Grants No. GA-43391; No. EAR-76-84233; No. EAR-76-84233-A01; Grant No. NsG-7588. The ecology of the cyanophyte-dominated stromatolitic mat	TITL AUTHOR AFFILIATIO PUBLICATIO
NASA SPONSORED DOCUMENT AIAA ACCESSION NUMBER AUTHOR	A80-12230 * Soil stabilization by a prokaryotic desert crust - Implications for Precambrian land biota. S. E. Campbell (Boston University, Boston, Mass.), Origins of Life, vol. 9, Sept. 1979, p. 335-348. 24 refs. NSF Grants No. GA-43391; No. EAR-76-84233; No. EAR-76-84233-A01; Grant No. NsG-7588. The ecology of the cyanophyte-dominated stromatolitic mat forming the ground cover over desert areas of Utah and Colorado is	——AUTHOR AFFILIATIO ——PUBLICATIO DAT
NASA SPONSORED DOCUMENT AIAA ACCESSION NUMBER AUTHOR	A80-12230 * Soil stabilization by a prokaryotic desert crust - Implications for Precambrian land biota. S. E. Campbell (Boston University, Boston, Mass.), Origins of Life, vol. 9, Sept. 1979, p. 335-348. 24 refs. NSF Grants No. GA-43391; No. EAR-76-84233-A01; Grant No. NsG-7588. The ecology of the cyanophyte-dominated stromatolitic mat forming the ground cover over desert areas of Utah and Colorado is investigated and implications for the formation of mature Precam-	TITL AUTHOR AFFILIATIO PUBLICATIO DAT CONTRAC
NASA SPONSORED DOCUMENT AIAA ACCESSION NUMBER AUTHOR	A80-12230 * Soil stabilization by a prokaryotic desert crust Implications for Precambrian land biota. S. E. Campbell (Boston-University, Boston, Mass.), Origins of Life, vol. 9, Sept. 1979, p. 335-348. 24 refs. NSF Grants No. GA-43391; No. EAR-76-84233; No. EAR-76-84233-A01; Grant No. NsG-7588. The ecology of the cyanophyte-dominated stromatolitic mat forming the ground cover over desert areas of Utah and Colorado is investigated and implications for the formation of mature Precambrian soils are discussed. The activation of the growth of the two	——AUTHOR AFFILIATIO DAT ——CONTRAC
NASA SPONSORED DOCUMENT AIAA ACCESSION NUMBER AUTHOR	A80-12230 * Soil stabilization by a prokaryotic desert crust - Implications for Precambrian land biota. S. E. Campbell (Boston University, Boston, Mass.), Origins of Life, vol. 9, Sept. 1979, p. 335-348. 24 refs. NSF Grants No. GA-43391; No. EAR-76-84233-A01; Grant No. NsG-7588. The ecology of the cyanophyte-dominated stromatolitic mat forming the ground cover over desert areas of Utah and Colorado is investigated and implications for the formation of mature Precam-	TITL AUTHOR AFFILIATIO PUBLICATIO DAT CONTRAC GRANT O
NASA SPONSORED DOCUMENT AIAA ACCESSION NUMBER AUTHOR	A80-12230 * Soil stabilization by a prokaryotic desert crust Implications for Precambrian land biota. S. E. Campbell (Boston-University, Boston, Mass.). Origins of Life, vol. 9, Sept. 1979, p. 335-348. 24 refs. NSF Grants No. GA-43391; No. EAR-76-84233; No. EAR-76-84233-A01; Grant No. NsG-7588. The ecology of the cyanophyte-dominated stromatolitic mat forming the ground cover over desert areas of Utah and Colorado is investigated and implications for the formation of mature Precambrian soils are discussed. The activation of the growth of the two species of filamentous cyanophyte identified and the mobility of their multiple trichromes upon wetting are observed, accompanied by the production and deposition of a sheath capable of accreting	TITL AUTHOR AFFILIATIO PUBLICATIO DAT CONTRAC GRANT O
NASA SPONSORED DOCUMENT AIAA ACCESSION NUMBER AUTHOR	A80-12230 * Soil stabilization by a prokaryotic desert crust - Implications for Precambrian land biota. S. E. Campbell (Boston—University, Boston, Mass.). Origins of Life, vol. 9, Sept. 1979, D. 335-348. 24 refs. NSF Grants No. GA-43391; No. EAR-76-84233; No. EAR-76-84233-A01; Grant No. NsG-7588. The ecology of the cyanophyte-dominated stromatolitic mat forming the ground cover over desert areas of Utah and Colorado is investigated and implications for the formation of mature Precambrian soils are discussed. The activation of the growth of the two species of filamentous cyanophyte identified and the mobility of their multiple trichromes upon wetting are observed, accompanied by the production and deposition of a sheath capable of accreting and stabilizing sand and clay particles. The formation of calcium	——AUTHOR AFFILIATIO DAT ——CONTRAC
NASA SPONSORED DOCUMENT AIAA ACCESSION NUMBER AUTHOR	A80-12230 * Soil stabilization by a prokaryotic desert crust - Implications for Precambrian land biota. S. E. Campbell (Boston University, Boston, Mass.), Origins of Life, vol. 9, Sept. 1979, p. 335-348. 24 refs. NSF Grants No. GA-43391; No. EAR-76-84233-A01; Grant No. NsG-7588. The ecology of the cyanophyte-dominated stromatolitic mat forming the ground cover over desert areas of Utah and Colorado is investigated and implications for the formation of mature Precambrian soils are discussed. The activation of the growth of the two species of filamentous cyanophyte identified and the mobility of their multiple trichromes upon wetting are observed, accompanied by the production and deposition of a sheath capable of accreting and stabilizing sand and clay particles. The formation of calcium carbonate precipitates upon the repeated wetting and drying of	TITL AUTHOR AFFILIATIO PUBLICATIO DAT CONTRAC GRANT O
NASA SPONSORED DOCUMENT AIAA ACCESSION NUMBER AUTHOR	A80-12230 * Soil stabilization by a prokaryotic desert crust - Implications for Precambrian land biota. S. E. Campbell (Boston—University, Boston, Mass.). Origins of Life, vol. 9, Sept. 1979, D. 335-348. 24 refs. NSF Grants No. GA-43391; No. EAR-76-84233; No. EAR-76-84233-A01; Grant No. NsG-7588. The ecology of the cyanophyte-dominated stromatolitic mat forming the ground cover over desert areas of Utah and Colorado is investigated and implications for the formation of mature Precambrian soils are discussed. The activation of the growth of the two species of filamentous cyanophyte identified and the mobility of their multiple trichromes upon wetting are observed, accompanied by the production and deposition of a sheath capable of accreting and stabilizing sand and clay particles. The formation of calcium	TITL AUTHOR AFFILIATIO
NASA SPONSORED DOCUMENT AIAA ACCESSION NUMBER AUTHOR	A80-12230 * Soil stabilization by a prokaryotic desert crust Implications for Precambrian land biota. S. E. Campbell (Boston University, Boston, Mass.). Origins of Life, vol. 9, Sept. 1979, p. 335-348. 24 refs. NSF Grants No. GA-43391; No. EAR-76-84233; No. EAR-76-84233-A01; Grant No. NsG-7588. The ecology of the cyanophyte-dominated stromatolitic mat forming the ground cover over desert areas of Utah and Colorado is investigated and implications for the formation of mature Precambrian soils are discussed. The activation of the growth of the two species of filamentous cyanophyte identified and the mobility of their multiple trichromes upon wetting are observed, accompanied by the production and deposition of a sheath capable of accreting and stabilizing sand and clay particles. The formation of calcium carbonate precipitates upon the repeated wetting and drying of desert crust is noted, and it is suggested that the desert crust	TITL AUTHOR AFFILIATIO PUBLICATIO DAT CONTRAC GRANT O
NASA SPONSORED DOCUMENT AIAA ACCESSION NUMBER AUTHOR	A80-12230 * Soil stabilization by a prokaryotic desert crust - Implications for Precambrian land biota. S. E. Campbell (Boston—University, Boston, Mass.), Origins of Life, vol. 9, Sept. 1979, D. 335-348. 24 refs. NSF Grants No. GA-43391; No. EAR-76-84233; No. EAR-76-84233-A01; Grant No. NsG-7588. The ecology of the cyanophyte-dominated stromatolitic mat forming the ground cover over desert areas of Utah and Colorado is investigated and implications for the formation of mature Precambrian soils are discussed. The activation of the growth of the two species of filamentous cyanophyte identified and the mobility of their multiple trichromes upon wetting are observed, accompanied by the production and deposition of a sheath capable of accreting and stabilizing sand and clay particles. The formation of calcium carbonate precipitates upon the repeated wetting and drying of desert crust is noted, and it is suggested that the desert crust community may appear in fossil calcrete deposits as lithified microscopic tubes and cellular remains of algal trichromes. The invasion of dry land by both marine and freshwater algae on the	TITL AUTHOR AFFILIATIO PUBLICATIO DAT CONTRAC GRANT O
NASA SPONSORED DOCUMENT AIAA ACCESSION NUMBER AUTHOR	A80-12230 * Soil stabilization by a prokaryotic desert crust Implications for Precambrian land biota. S. E. Campbell (Boston-University, Boston, Mass.). Origins of Life, vol. 9, Sept. 1979, p. 335-348. 24 refs. NSF Grants No. GA-43391; No. EAR-76-84233; No. EAR-76-84233-A01; Grant No. NsG-7588. The ecology of the cyanophyte-dominated stromatolitic mat forming the ground cover over desert areas of Utah and Colorado is investigated and implications for the formation of mature Precambrian soils are discussed. The activation of the growth of the two species of filamentous cyanophyte identified and the mobility of their multiple trichromes upon wetting are observed, accompanied by the production and deposition of a sheath capable of accreting and stabilizing sand and clay particles. The formation of calcium carbonate precipitates upon the repeated wetting and drying of desert crust is noted, and it is suggested that the desert crust community may appear in fossil calcrete deposits as lithified microscopic tubes and cellular remains of algal trichromes. The	——AUTHOR AFFILIATIO DAT ——CONTRAC

AEROSPACE MEDICINE

AND BIOLOGY

A Continuing Bibliography (Suppl. 205)

APRIL 1980

IAA ENTRIES

A80-17686 * Proton movements in response to a light-driven electrogenic pump for sodium ions in Halobacterium halobium membranes. R. V. Greene (Cornell University, Ithaca, N.Y.) and J. K. Lanyi (NASA, Ames Research Center, Moffett Field, Calif.). Journal of Biological Chemistry, vol. 254, Nov. 10, 1979, p. 10986-10994. 35 refs. NSF Grant No. 76-09718; Grant No. NIH-GM-23225A.

A80-17711 Visual cortical neurons - Are bars or gratings the optimal stimuli. D. G. Albrecht, R. L. De Valois, and L. G. Thorell (California, University, Berkeley, Calif.). *Science*, vol. 207, Jan. 4, 1980, p. 88-90. 15 refs. NSF Grant No. BNS-74-02621; Grants No. NIH-MH-10878; No. PHS-EY-00014.

The responses of single cells in the striate cortex of the macaque monkey and the cat are examined to determine the characteristics of their visual cortical neurons. To assess whether (1) bar and edge detectors or (2) cells selective for certain spatial frequencies are more accurate in terms of the functional description, the selectivity and the responsivity-sensitivity of these neurons to bars of various widths and gratings of various spatial frequencies, were measured. All of the cells recorded from, were considerably more selective along the dimension of spatial-frequency than along the dimension of bar width. Further, most were more responsive and sensitive to the grating of optimal frequency than to the bar of optimal width.

C.F.W.

A80-17726 Evaluation of human strain during interrupted exposure to vibration (Beurteilung der Beanspruchung des Menschen bei unterbrochener Schwingungsexposition). W. Scheibe and W. Rohmert (Darmstadt, Technische Hochschule, Darmstadt, West Germany). European Journal of Applied Physiology, vol. 42, no. 4, 1979, p. 209-225. 36 refs. In German.

An investigation of the psychophysical reactions to stochastic vibrations transmitted in vertical direction to a man in a sitting position in simulated experiments under laboratory conditions is presented. Indicators of bottleneck situations in functional systems of the organism and strain measurements allow evaluation of the recreation efficiency of interruptions in exposure time. The special meaning of the distribution and the frequency rate of interruptions can be illustrated by the time variance of the strain processes of selected muscles. A significant correlation results between the degree of muscle fatigue and the period of uninterrupted exposure so that numerous interruptions of vibration exposure should be considered as a useful guideline for design in ergonomics.

A80-17727 Quantitative study of free amino acids in human eccrine sweat excreted from the forearms of healthy trained and untrained men during exercise. N. Liappis (Children's Hospital, Bonn, West Germany), S.-D. Kelderbacher, K. Kesseler (Bonn, Universität, Bonn, West Germany), and P. Bantzer (Gesellschaft für Mathematik und Datenverarbeitung mbH, Bonn, West Germany). European Journal of Applied Physiology, vol. 42, no. 4, 1979, p.

227-234. 21 refs. Research supported by the Deutsche Forschungsgemeinschaft.

A80-17728 Body temperature and heart rate relationships during submaximal bicycle ergometer exercises. M. Tanaka, M. A. Volle, G. R. Brisson, and M. Dion (Québec, Université, Trois-Rivières, Canada). European Journal of Applied Physiology, vol. 42, no. 4, 1979, p. 263-270. 21 refs.

A80-17741 * Review of cell aging in Drosophila and mouse. J. Miquel (NASA, Ames Research Center, Biomedical Research Div., Moffett Field, Calif.), A. C. Economos (San Jose State University, San Jose, Calif.), K. G. Bensch (Stanford University, Stanford, Calif.), H. Atlan (Paris VI, Université, Paris, France), and J. E. Johnson, Jr. (National Institutes of Health, National Institute on Aging, Baltimore, Md.). Age, vol. 2, July 1979, p. 78-88. 70 refs.

A80-17986 # Study of fungal phenotypes after exposure to space flight parameters (Izuchenie fenotipov gribov posle kosmicheskogo poleta). P. A. Volz. Kosmicheskie Issledovaniia, vol. 17, Nov.-Dec. 1979, p. 920-926. 21 refs. In Russian.

A80-18081 # Physiological regulation of oxygen transport to muscles /from results of mathematical analysis of experimental data/ (O fiziologicheskoi reguliatsii transporta kisloroda v myshtsakh /po rezul'tatam matematicheskogo analiza eksperimental'nykh dannykh/). E. G. Liabakh (Akademia Nauk SSSR, Institut Fiziologii, Leningrad, USSR) and K. P. Ivanov (Akademiia Nauk Ukrainskoi SSR, Institut Kibernetiki, Kiev, Ukrainian SSR). Akademiia Nauk SSSR, Doklady, vol. 248, no. 2, 1979, p. 488-491. 7 refs. In Russian.

Progress in mathematics and computer technology has markedly increased the possibility of analyzing oxygen-diffusion processes in muscles. The paper outlines a mathematical analysis pertaining to the regulation of oxygen supply to the muscles of warm-blooded animals, based on in vivo measurements of basic morphological parameters of micro-circulation. Attention is given to calculating the oxygen saturation of a muscle at rest and during muscular work under conditions of combined work and increased number of operating capillaries or under conditions of accelerated capillary blood flow. The calculations are performed using a three-dimensional model of oxygen diffusion in muscles.

A80-18082 # Temperature compensation of the metabolism of serotonin in the brain of hibernating mammals (Temperaturnaia kompensatsiia metabolizma serotonina v mozge zimospiashchikh). N. K., Popova, N. N. Voitenko, and A. D. Slonim (Akademiia Nauk SSSR, Institut Tsitologii i Genetiki, Novosibirsk, USSR). Akademiia Nauk SSSR, Doklady, vol. 248, no. 2, 1979, p. 492-494. 11 refs. In Bussian.

Results are presented for a study of the temperature dependence of oxidative deamination of serotonin in the brain of red-cheeked marmots at the initial stage of hibernation, during hibernation, and after awakening. The experiments were conducted on males of the Citellus erythrogenys Brandt strain. It is likely that in hibernating mammals with decreased body temperature, the mechanisms respon-

sible for the temperature compensation of metabolism are to a certain extent similar to those for polkilothermic animals.

A80-18250 # A new engineering approach to motion cueing technology. H. Jaslow (Gould, Inc., Melville, N.Y.). American Institute of Aeronautics and Astronautics, Aerospace Sciences Meeting, 18th, Pasadena, Calif., Jan. 14-16, 1980, Paper 80-0047. 8 p. 10 refs.

A new and unique approach to motion simulation is presented which provides a simple, yet powerful, engineering tool. From a study of the physical mechanisms of sensory receptors, perceived sensation of motion can be quantified. With this quantification, a method is presented to evaluate and specify requirements for motion platforms. Calculations are made of real cue regimes vs. aircraft maneuvers and simulator excursion limits. (Author)

A80-18643 # Static acoustic impedance profiles in auditory diagnosis. P. W. Whaley (USAF, Institute of Technology, Wright-Patterson AFB, Ohio) and L. D. Zirkle (Oklahoma State University, Stillwater, Okla.). American Society of Mechanical Engineers, Winter Annual Meeting, New York, N.Y., Dec. 2-7, 1979, Paper 79-WA/Bio-1. 13 p. 6 refs. Members, \$1.50; nonmembers, \$3.00. NIH-supported research.

A study was carried out to determine the value in auditory diagnosis of static acoustic impedance (absence of middle ear muscle activity) plotted versus frequency. This is different from conventional impedance audiometry in that the inductance can be measured. An entirely new device (patents currently being pursued) was used to gather these data, not possible to obtain with conventional devices. Clinical data was obtained on both normal and pathological human subjects. The resulting data indicate that pathological conditions result in changes in the shape of the impedance profile which are characteristic of the particular disorder and well outside the range associated with normal ears. The authors feel that considerably more information can be detected from such an impedance profile based on their experience with frequency response properties of dynamic systems. More extensive data will be required to provide a definitive analysis of the value of this technique in diagnosis. (Author)

A80-18839 The effect of character size on the legibility of numeric displays during vertical whole-body vibration. C. H. Lewis and M. J. Griffin (Southampton, University, Southampton, England). *Journal of Sound and Vibration*, vol. 67, Dec. 22, 1979, p. 562-565. 5 refs. Research supported by the Ministry of Defence (Procurement Executive).

A80-18975 Left ventricular relaxation and filling pattern in different forms of left ventricular hypertrophy - An echocardiographic study. P. Hanrath, D. G. Mathey, R. Siegert, and W. Bleifeld (University Hospital, Hamburg, West Germany). American Journal of Cardiology, vol. 45, Jan. 1980, p. 15-23. 23 refs. Research supported by the Gesellschaft für Strahlen- und Umweltforschung mbH.

A80-19023 Proficiency maintenance and assessment in an instrument flight simulator. D. O. Weitzman, M. L. Fineberg, P. A. Gade (U.S. Army, Research Institute, Alexandria, Va.), and G. L. Compton (U.S. Army, Fort Campbell, Ky.). Human Factors, vol. 21, Dec. 1979, p. 701-710. 10 refs. Army-supported research.

Transfer effects have been studied to evaluate the suitability of a high fidelity flight simulator (Device 2B24) for maintaining and assessing instrument proficiency among experienced Army helicopter pilots. Evidence in support of positive transfer was obtained by comparing pilots trained in the simulator with pilots trained in the aircraft (UH-1H) and with pilots trained in both. In addition, performance evaluation in the simulator accurately predicted performance in the aircraft. This study suggests that simulators of proven effectiveness can be used both to maintain and assess the proficiency of experienced pilots. (Author)

A80-19024 * When day is done and shadows fall, we miss the airport most of all. S. N. Roscoe (New Mexico State University, Las Cruces, N. Mex.). *Human Factors*, vol. 21, Dec. 1979, p. 721-731. 20 refs. NASA-Army-supported research.

Both the effectiveness of pilot training and the safety of flight can be influenced by the distribution of texture in the visual scene, the distance to which the eyes accommodate, and the associated shifts in the apparent size and distance of objects in central and peripheral vision. Studies reviewed and original results presented indicate that these factors are involved in various misjudgments and illusions experienced by pilots: (1) when searching for other airborne traffic or targets, (2) when making approaches to airports over water at night, (3) when breaking out of low clouds on a final approach to a landing by reference to head-up or head-down displays, and (4) when practicing simulated approaches and landings or air-to-surface weapon deliveries by reference to synthetically generated visual systems. (Author)

A80-19025 * Mathematical concepts for modeling human behavior in complex man-machine systems. G. Johannsen (Forschungsinstitut für Anthropotechnik, Werthhoven, West Germany) and W. B. Rouse (Illinois, University, Urbana, III.). Human Factors, vol. 21, Dec. 1979, p. 733-747. 73 refs. Grant No. NsG-2119.

Many human behavior (e.g., manual control) models have been found to be inadequate for describing processes in certain real complex man-machine systems. An attempt is made to find a way to overcome this problem by examining the range of applicability of existing mathematical models with respect to the hierarchy of human activities in real complex tasks. Automobile driving is chosen as a baseline scenario, and a hierarchy of human activities is derived by analyzing this task in general terms. A structural description leads to a block diagram and a time-sharing computer analogy.

B.J.

A80-19100 # Scientific biomedical studies during the flight of the first Bulgarian cosmonaut (Nauchnite mediko-biologichni izsledvaniia pri poleta s uchastieto na p'rviia b'Igarski kosmonaut). K. Zlatarev. B'Igarska Akademiia na Naukite, Spisanie, no. 5, 1979, p. 28-32. In Bulgarian.

A80-19452 A nonparametric model of detection of signals, observed by a human operator on a CRT screen in the presence of noise. V. N. Budko, F. M. Klement'ev, and N. M. Novikova. (Radiotekhnika i Elektronika, vol. 23, Nov. 1978, p. 2439-2442.) Radio Engineering and Electronic Physics, vol. 23, Nov. 1978, p. 131-133. Translation.

A method is devised for taking into account the psychological factor during the operator observation of signals on a TV screen on a noise background. The method is based on the determination of the so-called 'working characteristic' which is defined as the dependence of the probability of signal detection on the intensity of the signal as the latter is observed on a noise background. The use of nonparametric criteria for such detection processes is discussed; a special feature of such detection is the fact that false-alarm probability is independent of the form of the noise distribution function.

A80-19850 * Confidence regions of planar cardiac vectors. S. Dubin, A. Herr, and P. Hunt (Drexel University, Philadelphia, Pa.). *Journal of Electrocardiology*, vol. 13, Jan. 1980, p. 7-10. 8 refs. Grant No. NsG-7494.

A method for plotting the confidence regions of vectorial data obtained in electrocardiology is presented. The 90%, 95% and 99% confidence regions of cardiac vectors represented in a plane are obtained in the form of an ellipse centered at coordinates corresponding to the means of a sample selected at random from a bivariate normal distribution. An example of such a plot for the frontal plane QRS mean electrical axis for 80 horses is also presented.

A.L.W.

A80-20018 * Space motion sickness. J. L. Homick (NASA, Johnson Space Center, Medical Sciences Div., Houston, Tex.). Acta Astronautica, vol. 6, Oct. 1979, p. 1259-1272. 18 refs.

Research on the etiology, prediction, treatment and prevention of space motion sickness, designed to minimize the impact of this syndrome which was experienced frequently and with severity by individuals on the Skylab missions, on Space Shuttle crews is reviewed. Theories of the cause of space motion sickness currently under investigation by NASA include sensory conflict, which argues that motion sickness symptoms result from a mismatch between the total pattern of information from the spatial senses and that stored from previous experiences, and fluid shift, based upon the redistribution of bodily fluids that occurs upon continued exposure to weightlessness. Attempts are underway to correlate space motion sickness susceptibility to different provocative environments, vestibular and nonvestibular responses, and the rate of acquisition and length of retention of sensory adaptation. Space motion sickness countermeasures under investigation include various drug combinations, of which the equal combination of promethazine and ephedrine has been found to be as effective as the scopolomine and dexedrine combination, and vestibular adaptation and biofeedback training and autogenic therapy. A.L.W.

A80-20019 * Exercise response to simulated weightlessness. C. F. Sawin, J. A. Rummel, and M. C. Buderer (NASA, Johnson Space Center, Houston, Tex.). *Acta Astronautica*, vol. 6, Oct. 1979, p. 1273-1287, 14 refs.

Two bed rest analog studies of space flight were performed; one 14 d and the other 28 d in duration. Exercise response was studied in detail during the 28 d study and following both the 14 d and 28 d studies. This paper relates the results of these studies to physiologic changes noted during and following space flight. The most consistent change noted after both bed rest and space flight is an elevated heart rate during exercise. A second consistent finding is a postflight or postbed rest reduction in cardiac stroke volume. Cardiac output changes were variable. The inability to simulate inflight activity levels and personal exercise makes a direct comparison between bed rest and the results from specific space flights difficult. (Author)

A80-20020 * A mathematical and experimental simulation of the hematological response to weightlessness. \$\bar{S}\$. L. Kimzey (NASA, Johnson Space Center, Houston, Tex.), J. l. Leonard (General Electric Co., Houston, Tex.), and P. C. Johnson (Baylor University, Houston, Tex.). *Acta Astronautica*, vol. 6, Oct. 1979, p. 1289-1303. 32 refs.

A mathematical model of erythropoiesis control was used to simulate the effects of bedrest and zero-g on the circulating red cell mass. The model incorporates the best current understanding of the dynamics of red cell production and destruction and the associated feedback regulation. Specifically studied were the hemodynamic responses of a 28-day bedrest study devised to simulate Skylab experience. The results support the hypothesis that red cell loss during supine bedrest is a normal physiological feedback process in response to hemoconcentration enhanced tissue oxygenation and suppression of red cell production. Model simulation suggested the possibilities that this period was marked by some combination of increased oxygen-hemoglobin affinity, small reduction in mean red cell life span, ineffective erythropoiesis, or abnormal reticulocytosis.

A80-20021 * A study of metabolic balance in crewmembers of Skylab IV. P. C. Rambaut, C. S. Leach, and G. D. Whedon (NASA, Johnson Space Center, Medical Sciences Div., Houston, Tex.). Acta Astronautica, vol. 6, Oct. 1979, p. 1313-1322. 21 refs.

A metabolic balance study was conducted on the three crewmembers of the 84-day Skylab IV earth orbital mission. Dietary intake was controlled, monitored, and kept very nearly constant for a period commencing 21 days prior to flight, throughout flight, and for a period of 18 days postflight. Within the first 30 days of flight urine calcium rose to a level approx. 100% above preflight levels and remained elevated for the remainder of the flight. Fecal calcium excretion increased more slowly but continued to accelerate throughout the flight and did not return to baseline levels during the postflight period. Urinary nitrogen increased to 25-30% above preflight levels within one month following launch and thereafter

gradually subsided toward control values. The overall losses of calcium averaged approx. 200 mg per day throughout the mission while nitrogen losses averaged 590 mg. Various other indices of musculoskeletal deterioration are discussed and correlated. The parallelism between the effects of weightlessness and bed rest is reviewed. It is noted, that no evidence is yet available as to the identity of the initial biological response to the absence of gravity.

(Author)

A80-20022 * Amino aciduria in weightlessness. C. S. Leach, P. C. Rambaut (NASA, Johnson Space Center, Houston, Tex.), and N. di Ferrante (Baylor University, Houston, Tex.). Acta Astronautica, vol. 6, Oct. 1979, p. 1323-1333. 30 refs.

Urinary excretion of amino acids by the 9 Skylab crewmen was studied as an indicator of the metabolic effects caused by exposure to the space flight environment. Intake was consistent in quality and quantity throughout the 28, 59 and 84-day flights for each of the crewmen and complete collections were accomplished. The results indicated an increased excretion in most amino acids during the first month of flight which remained elevated in the second and third months but to a lesser extent. Additional indications of change in muscle and skeletal metabolism were observed. These results point to the desirability of obtaining additional indices of alterations in protein synthetic processes in conjunction with future space flights.

A80-20023 * Fluid volumes changes induced by spaceflight. P. C. Johnson (Baylor University, Houston, Tex.). *Acta Astronautica*, vol. 6, Oct. 1979, p. 1335-1341. 10 refs. Contracts No. NAS9-14578; No. NAS9-14662; No. NAS9-11201.

The blood volume (BV), plasma volume (PV), and extracellular fluid volume changes produced in crewmembers during spaceflights of 11-84 days were compared to changes after 14 or 28 days of bedrest. Spaceflight and bedrest produce approximately equal BV changes but the recorded PV change after spaceflight was less. However, the diurnal change in PV may explain the smaller decreases recorded after spaceflight. The cardiovascular deconditioning caused by spaceflight and bedrest was compared using the mean heart rate response to lower body negative pressure (LBNP) testing at -50 mmHg pressure. These tests show approximately equal LBNP produced heart rate changes after bedrest and spaceflight. A countermeasure which includes 4 hr of LBNP treatment at -30 mmHg and the ingestion of one I. of saline was studied and found capable of returning the heart rate response and the PV of bedrested subjects to control (prebedrest) levels suggesting that it would be useful to the crewmembers after a spaceflight.

A80-20082 # The effect of antiorthostatic stimuli on human operators studied using rheography data (Vliianie antiortostaticheskogo vozdeistviia na cheloveka-operatora /po dannym reografii/). Sh. T. Avetikian and A. M. Zingerman (Akademiia Meditsinskikh Nauk SSSR, Leningrad, USSR). Fiziologiia Cheloveka, vol. 5, Nov.-Dec. 1979, p. 1052-1059. 17 refs. In Russian.

The blood flow characteristics of the heat and shin as well as of the arterial pressure and pulse rate of human operators were studied in order to evaluate the effect of antiorthostatic stimuli. It is shown that an antiorthostatic stimulus of -45 deg for 20 min, causing increased blood flow to the upper part of the body, increases the tonus of the brain arteries and decreases the tonus of leg arteries; these changes facilitate the redistribution of blood toward the extremeities. When there is a sufficient venous flow from the brain, compensatory responses of the cardiovascular system to the antiorthostatic stimuli are not pronounced; a reduced venous outflow is accompanied by an increase in brain-artery tonus and in arterial pressure. Operator performance is found to suffer most during a pronounced reduction of venous flow from the brain.

A80-20211 # Relationship among the 55 Hz bioelectric rhythm of the olfactory bulb, the bulb S-rhythm, and respiration (Vzaimootnoshenie bioelektricheskogo ritma 55 Gts oboniatel'noi lukovitsy, lukovichnogo S-ritma i dykhaniia). G. L. Vepkhvadze and D. M. Gedevanishvili (Tbilisskii Gosudarstvennyi Meditsinskii Insti-

tut, Tiflis, Georgian SSR). Akademiia Nauk Gruzinskoi SSR, Soobshcheniia, vol. 95, Sept. 1979, p. 685-688. 6 refs. In Russian.

A80-20212 # Practical criteria for analyzing the heart hemodynamics of young athletes (Prakticheskie kriterii v analize kardio-gemodinamiki u iunykh sportsmenov). V. S. Shaginian, T. K. Zhorzholadze, V. P. Kovtun, and T. K. Kutateladze, Akademiia Nauk Gruzinskoi SSR, Soobshcheniia, vol. 95, Sept. 1979, p. 725-727. In Russian.

A80-20213 # Polycardiographic research with a singlechannel electrocardiograph (Polikardiograficheskoe issledovanie odnokanal'nym elektrokardiografom). A. M. Romanko (Tbilisskii Gosudarstvennyi Meditsinskii Institut, Tiflis, Georgian SSR). Akademiia Nauk Gruzinskoi SSR, Soobshcheniia, vol. 95, Sept. 1979, p. 733-736, 15 refs. In Russian.

A single-channel electrocardiographic technique is described. Recorded data yield a single complex monographic curve, on which three basic parameters of heart activity are distinguished; these parameters are suitable for the phase analysis and qualitative evaluation of cardiac action. A block diagram of the setup is presented.

A80-20387 Energy uptake in the first step of visual excitation. A. Cooper (Glasgow, University, Glasgow, Scotland). *Nature*, vol. 282, Nov. 29, 1979, p. 531-533. 19 refs. Research supported by the Science Research Council.

The direct measurement of photon energy uptake during the formation of bathorhodopsin from bovine rhodopsin in the photochemical process of visual excitation is reported and the possible significance of the results is discussed. Photocalorimeter determinations of the energy uptake by rhodopsin illuminated at 450 or 485 nm and 77 K accompanied by the photoreversible formation of bathorhodopsin indicate that the ground state energy of bathorhodopsin is about 35 kcal (145 J, 1.50 eV) higher than that of rhodopsin. On the basis of this unexpectedly high ground-state energy for bathorhodopsin, ground- and excited-state potential energy surfaces for the photoreaction are constructed which reveal the possibility of the overlap of the potential surfaces. A possible mechanism for the response of rhodopsin to photon absorption is then proposed and it is noted that, because of energy surface overlap, at very low temperatures an energy barrier and a temperature dependence in the rate of bathorhodopsin formation from the excited state of rhodopsin may be found. A.L.W.

A80-20441 Combined effects of broadband noise and complex waveform vibration on cognitive performance, C. S. Harris and R. W. Shoenberger (USAF, Aerospace Medical Research Laboratory, Wright-Patterson AFB, Ohio). *Aviation, Space, and Environmental Medicine*, vol. 51, Jan. 1980, p. 1-5. 18 refs. Contract No. F33615-76-C-0401.

The performance of 12 subjects was measured on a complex counting task during exposure to each of four experimental conditions for a duration of 30 min. Two levels of noise, 65 dBA and 100 dBA, were presented both with and without 0.36 rms Gz sum-of-sines vibration. Combined 100 dBA noise and vibration produced less adverse effects than the vibration combined with 65 dBA noise. This result agrees with previous studies using tracking tasks. However, two effects were demonstrated that had not been obtained previously. First, a clearcut adverse effect of vibration on the counting task was obtained. Second, an adverse effect of 100 dBA noise on the counting tasks was demonstrated. Previously, a 110 dBA noise was required to adversely affect tracking performance.

(Author)

A80-20442 Serum cholesterol levels in selected Air Force cadets compared with levels in the West Point study. D. A. Clark, E. L. Mosser, E. L. Foulds, E. L. Arnold, and F. H. Wilson, Jr. (USAF, School of Aerospace Medicine, Brooks AFB; U.S. Army Health Sciences Academy, Fort Sam Houston, Tex.). Aviation, Space, and Environmental Medicine, vol. 51, Jan. 1980, p. 6-10. 19 refs.

A80-20443 Eustachian tube function in selection of airmen. P. Groth, A. Ivarsson, A. Nettmark, and O. Tjernstrom (Malmo General Hospital, Malmo, Sweden). Aviation, Space, and Environmental Medicine, vol. 51, Jan. 1980, p. 11-17. 21 refs. Research supported by the Forsvarets Forskningsanstalt.

A comprehensive study of Eustachian tube function in 84 aspirants accepted for flight training was made. Using a pressure chamber, both static and dynamic pressure changes, as in ascent and descent, were applied to test the tubal pressure equilibrating capacity in the sitting position. While all 84 were otologically healthy, a wide range in the pressure equilibrating capacity was found - 20% could not equilibrate static over- and underpressures of 10 cm H2O completely, 8% could not equilibrate at all during simulated descent. 3 subjects reported acute vertigo during simulated ascent in combination with high unilateral middle ear pressure. Asymmetry between ears of single subjects in pressure equilibrating capacity was also found to a large extent. It was not possible to identify subjects with poor equilibrating capacity by simple tests like Valsalva's or Toynbee's manoeuvres. The results may indicate that today's criteria for Eustachian tube function in the selection of airmen can be made more efficient. (Author)

A80-20444 * A sudden-stop vestibulovisual test for rapid assessment of motion sickness manifestations. A. Graybiel (U.S. Navy, Naval Aerospace Medical Research Laboratory, Pensacola, Fla.) and J. R. Lackner (Brandeis University, Waltham; MIT, Cambridge, Mass.). Aviation, Space, and Environmental Medicine, vol. 51, Jan. 1980, p. 21-23. 5 refs. Contract No. NAS9-15147. NASA Order T-9140-E.

A sudden-stop vestibulovisual (SSV) test employing a rotating chair centered in a striped cylindrical enclosure is discussed. A subject, with his eyes covered, is accelerated clockwise at 15 degrees per second squared and maintained at this velocity for 30 sec. The chair is then brought to rest within 1.5 sec and remains at rest for 30 sec while physiological parameters and motion sickness symptoms are recorded. The procedure is repeated until a predetermined motion sickness endpoint (slight nausea) is reached or 20 stops have been made. The scores made by 14 subjects in 4 sessions in terms of susceptibility to motion sickness are presented, and the pattern of all scores indicates rates of acquisition and decay of adaptation effects. It is concluded that at sea or in flight training good retention of adaptation is more important than is a rapid rate of acquiring adaptation, but in Spacelab, where early missions will be brief, rapid acquisition is all-important.

A80-20445 Effect of 1 alpha-hydroxy-cholecalciferol and varying phosphorous content in the diet on calcium phosphorous metabolism in hypokinetic rats. A. S. Ushakov, V. B. Spirichev, M. S. Belakovskii, N. V. Blazheevich, and A. L. Pozdniakov (Ministerstvo Zdravookhraneniia SSSR, Institut Mediko-Biologicheskikh Problem, Moscow, USSR). Aviation, Space, and Environmental Medicine, vol. 51, Jan. 1980, p. 24-28. 12 refs.

A80-20446 Effect of hypogravity on human lymphocyte activation. A. Cogoli, M. Valluchi-Morf, M. Mueller (Zürich, Eidgenössische Technische Hochschule, Zurich, Switzerland), and W. Briegleb (Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt, Institut für Flugmedizin, Bonn, West Germany). Aviation, Space, and Environmental Medicine, vol. 51, Jan. 1980, p. 29-34. 22 refs. Swiss National Science Foundation Grant No. 3,109,077.

Cultures of human lymphocytes were exposed to the mitogen concanavalin A in a low-g environment generated by a fast rotating clinostat. DNA-synthesis was determined by the incorporation of (H-3)-thymidine as the parameter for activation, cell ultrastructure was analyzed by electron microscopy, and cell movements were recorded by a cinecamera. The results were compared with 1-g controls. The cells cultured at low g show: (1) a depression of activation by 50%, (2) the appearance of 'mitochondria-rich' cells, and (3) the enhanced formation of pseudovilli and uropods. Investigations in vitro at low and high g and reports on the effect of

spaceflights on lymphocytes from cosmonauts and astronauts suggest that hypogravity depresses, whereas hypergravity enhances, lymphocyte activation by mitogens.

(Author)

A80-20447 * Hypergravity and estrogen effects on avian anterior pituitary growth hormone and prolactin levels. R. P. Fiorindo and J. A. Negulesco (Ohio State University, Columbus, Ohio). Aviation, Space, and Environmental Medicine, vol. 51, Jan. 1980, p. 35-40. 26 refs. Research supported by the Ohio State University; Contract No. NAS2-6634.

Developing female chicks with fractured right radii were maintained for 14 d at either earth gravity (1 g) or a hypergravity state (2 g). The birds at 1 g were divided into groups which received daily injections of (1) saline, (2) 200 micrograms estrone, and (3) 400 micrograms estrone for 14 d. The 2-g birds were divided into three similarly treated groups. All 2-g birds showed significantly lower body weights than did 1-g birds. Anterior pituitary (AP) glands were excised and analyzed for growth hormone and prolactin content by analytical electrophoresis. The 1-g chicks receiving either dose of daily estrogen showed increased AP growth hormone levels, whereas hypergravity alone did not affect growth hormone content. Chicks exposed to daily estrogen and hypergravity displayed reduced growth hormone levels. AP prolactin levels were slightly increased by the lower daily estrogen dose in 1-g birds, but markedly reduced in birds exposed only to hypergravity. Doubly-treated chicks displayed normal prolactin levels. Reduced growth in 2-g birds might be due, in part, to reduced AP levels of prolactin and/or growth hormone.

(Author)

A80-20448 Development of 'sports anemia' in physically fit men after daily sustained submaximal exercise. M. W. Radomski, B. H. Sabiston (Defence and Civil Institute of Environmental Medicine, Downsview, Ontario, Canada), and P. Isoard (Service de Santé des Armées, Centre de Recherches, Lyons, France). (Aerospace Medice! Association, Annual Meeting, 50th, Washington, D.C., May 14-17, 1979.) Aviation, Space, and Environmental Medicine, vol. 51, Jan. 1980, p. 41-45, 25 refs.

Hematological changes were studied in physically fit young soldiers who marched 35 km/d for 6 d, working at 35 percent of their maximal oxygen consumption. Four days of marching produced decreases in numbers of erythrocytes (RBC) and in hematocrit (Hct). This 'sports anemia' persisted beyond day 6 into the post-march period and was accompanied by decreases in hemoglobin (Hb), mean corpuscular hemoglobin (MCH), mean corpuscular hemoglobin concentration (MCHC), and mean corpuscular volume (MCV). The latter decrease was attributed to a preferential destruction of large RBC. The post-march period was characterized by an early (2 d) recovery of RBC numbers, Hct, and MCV, and a persistent (greater than 4 d) decrease in Hb, MCH, and MCHC. This pattern, characteristic of hypochromic macrocystosis, possibly reflects a premature release of young RBC from the bone marrow. Clearly, 'sports anemia,' previously reported to occur with intensive physical exercise, can also result from sustained and repetitive submaximal exercise. (Author)

A80-20449 Psychophysiological monitoring of operator's emotional stress in aviation and astronautics. P. V. Simonov, M. V. Frolov, and E. A. Ivanov (Academy of Sciences, Institute of Higher Nervous Activity and Neurophysiology, Moscow, USSR). *Aviation, Space, and Environmental Medicine*, vol. 51, Jan. 1980, p. 46-49. 6 refs.

Skill performance of an aerospace operator is greatly influenced by the level of emotional stress. The paper reviews methods of objective monitoring of emotional stress based on analysis of changes in the characteristics of physiological functions. Indirect methods like analysis of physiological and electrophysiological signals from the body surface, including the pneumogram, ECG, EEG, GSR and various speech parameters are preferred. To eliminate the short-comings of physiological monitoring and performance testing a

combined method is recommended permitting one to diminish the size of the required electrophysiological signal and to shorten the frequency of testing. Special attention is given to estimation of the changes in heart rate and T-peak amplitude and spectral and intonational characteristics of the human voice. The experiment conducted on a mock-up of an aircraft at the Vnukovo airport is described.

A80-20450 Bone remodeling in centrifuged rats - Histomorphometric study after an 18-day run. C. Nogues and M. Peuchmaur (Laboratoire Central de Biologie Aéronautique, Paris, France). Aviation, Space, and Environmental Medicine, vol. 51, Jan. 1980, p. 50-55. 17 refs.

A histomorphometric and histodynamic study of bone tissue was conducted in rats exposed to 2 G centrifugation for a period of 18 d. Shortening of the femurs was observed, associated with alterations of the growth cartilage in centrifuged animals. The morphometric analysis demonstrates a reduction in bone volume without increase in the activity of osteoblasts. The fluorescent fixation during the dynamic study shows a reduced appositional rate. This result seems to reflect the numerous factors which contribute to the experimental centrifugation test: the osteoporosis is cortisone induced; it is a response to the aggression and probably conceals the remodeling due to higher stress loads. (Author)

A80-20451 Heat stress exposure of aerial spray pilots. B. Gribetz, E. D. Richter, M. Krasna, and M. Gordon (Jerusalem, Hebrew University; Ministry of Transport, Jerusalem, Israel). *Aviation, Space, and Environmental Medicine,* vol. 51, Jan. 1980, p. 56-60. 13 refs.

A80-20452 Motion sickness. I - A theory. II - A clinical study based on surgery of cerebral hemisphere lesions. III - A clinical study based on surgery of posterior fossa tumors. R. C. Schneider and E. C. Crosby (University Hospital, Ann Arbor, Mich.). Aviation, Space, and Environmental Medicine, vol. 51, Jan. 1980, p. 61-85. 99 refs.

A theory is suggested on 'motion sickness' reported by 15 percent of American astronauts and 17 percent of Russian cosmonauts and described as 'dizziness, nausea, vomiting, flashes of light, formed hallucinations or illusions of inversion of image in space or disorientation in space'. Two types of motion sickness are defined. Both have manifestations of nausea, vomiting, headache and dizziness, but there are symptoms of the motion sickness as related to peripheral organs, the inner ear and the eye, as contrasted to 'motion sickness in space' which has additional symptoms of hallucinations and illusions and is related to the temporoparieto-occipital cortex of the brain. Vascular insufficiency to this area by spasm of the vessel may be responsible for this symptomatology. The theory is supported by clinical studies based on brain surgery. The study suggests that it might be profitable to test a space applicant not only in a centrifugal or horizontal plane but also in vertical or other planes with the sudden application of restraint at different rates of speed using CT scanning.

A80-20500 # Perspectives of the utilization of hyperbaric oxygenation in aviation medicine (Perspektivy ispol'zovaniia giperbaricheskoi oksigenatsii v praktike aviatsionnai meditsiny). I. N. Cherniakov, V. I. Prodin, and P. Ia. Azhevskii. Voenno-Meditsinskii Zhurnal, Nov. 1979, p. 52-54. In Russian.

A80-20680 # A mathematical model of the disruption of mirror symmetry in prebiological evolution (Matematicheskaia model' narusheniia zerkal'noi simmetrii v predbiologicheskoi evoliutsii). L. L. Morozov and V. E. Kulesh (Vsesoiuznyi Nauchno-Issledovatel'skii i Proektno-Konstruktorskii Institut po Truboprovodnym Konteinernym Sistemam, Moscow, USSR). Akademiia Nauk SSSR, Doklady, vol. 248, no. 5, 1979, p. 1263-1266. In Russian.

The paper develops a computer model that relates the evolution of optical asymmetry in phase-specialized multimolecular systems to

the prebiological evolution of such systems. It is shown that the formation and evolution of open phase-specialized systems under conditions of interaction with the environment and stochasticity of reproduction processes created conditions for the disruption of mirror symmetry and the 'perfection' of optical asymmetry. The proposed model agrees well with Oparin's theories of abiogenesis.

B.J

A80-20681 # Topographic characteristics of post-synaptic actions of primary vestibular fibers on the vestibulospinal neurons of Deiters nucleus (Topograficheskie osobennosti postsinapticheskikh vliiänii pervichnykh vestibuliarnykh volokon na vestibulo-spinal'nye neirony iadra Deitersa). V. A. Sarkisian and V. V. Fanardzhian (Akademiia Nauk Armianskoi SSR, Institut Fiziologii, Yerevan, Armenian SSR). Fiziologicheskii Zhurnal SSSR, vol. 65, Oct. 1979, p. 1441-1447. 17 refs. In Russian.

A80-20682 # Deiters-nucleus potentials evoked by stimulation of the neural elements of bones and musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed (Vyzvannye potentsialy iadra Deitersa pri stimuliatsii nervnykh elementov kostei, kozhnykh i myshechnykh nervov u detserebrirovannykh i tserebellektomirovannykh zhivotnykh). V. P. Orlov (Ministerstvo Zdravookhraneniia Latviiskoi SSR, Nauchno-Issledovatel'skii Institut Eksperimental'noi i Klinicheskoi Meditsiny, Riga, Latvian SSR). Fiziologicheskii Zhurnal SSSR, vol. 65, Oct. 1979, p. 1487-1491. 18 refs. In Russian.

Cats were used to record evoked potentials in the stimulation of the neural elements of the bone marrow in front- and hind-leg bones and musculo-cutaneous nerves in the Deiters nucleus. The data indicate that information from the neural elements of the bones can reach the Deiters nucleus via spinovestibular channels bypassing the cerebellum.

V.P.

A80-20683 # Effect of hypoxia on the contractile activity of smooth muscle cells in the thoracic duct (Vliianie gipoksii iva sokratitel'nuiu aktivnost' gladkomyshechnykh kletok grudnogo limfaticheskogo protoka). N. A. Gladysheva (Leningradskii Sanitarno-Gigienicheskii Meditsinskii Institut, Leningrad, USSR). Fiziologicheskii Zhurnal SSSR, vol. 65, Oct. 1979, p. 1520-1526. 13 refs. In Russian.

A80-20684 # Hormonal regulation of calcium and phosphorus homeostasis during physical activity (Gormonal'naia reguliatsiia gomeostaza kal'tsiia i fosfora pri fizicheskoi nagruzke). G. G. Tsybizov (Tartuskii Gosudarstvennyi Universitet, Tartu, Estonian SSR). Fiziologicheskii Zhurnal SSSR, vol. 65, Oct. 1979, p. 1539-1543. 13 refs. In Russian.

A80-20855 Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, University of Pittsburgh, Pittsburgh, Pa., April 25-27, 1979. Part 1 - Biomedical. Conference sponsored by the University of Pittsburgh. Edited by W. G. Vogt and M. H. Mickle. Pittsburgh, Pa., Instrument Society of America, 1979. 308 p. Price of five parts, \$125.

The papers deal with the mathematical modeling of biomedical mechanisms and phenomena. Among the topics covered are: the mathematical modeling of intracranial pressure dynamics; computer models for freezing and thawing in biological systems; modeling for therapeutic design; pattern recognition and information processing in biological problems; modeling and estimation in biological systems; spatial vision; information modeling of biological structures; and modeling and estimation in biomedical systems.

V.P.

A80-20856 The informational structure of DNA, RNA, and amino acid sequences. D. W. Kopp, G. W. Moser, and J. A. Skraly (Pittsburgh, University, Pittsburgh, Pa.). In: Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, Pittsburgh, Pa., April 25-27, 1979. Part 1.

Pittsburgh, Pa., Instrument Society of America, 1979,

Pittsburgh, Pa., Instrument Society of America, 1979 p. 139-150. 25 refs.

In the study described, the differences between the informational structure variables for DNA, RNA, and polypeptides were noted, and information variables which significantly discriminated between sources were identified. Using only structure information variables in a discriminant analysis technique, 48 of the 53 mRNA sequences investigated could be properly identified as to DNA, RNA, or protein source. A new powerful approach to the investigation of the informational structure of nucleic acids and polypeptides is proposed.

V.P.

A80-20857 Information processes in the evolution of protein synthesis. G. W. Moser, D. W. Kopp, and J. A. Skraly (Pittsburgh, University, Pittsburgh, Pa.). In: Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, Pittsburgh, Pa., April 25-27, 1979. Part 1.

Pittsburgh, Pa., Instrument Society of America, 1979, p. 151-159. 16 refs.

The role of DNA base probabilities and their relationship with information structure was investigated. An interesting result is that thymine and guanine base probabilities have a principal influence on DNA sequence information. DNA information content is not related to the length of the sequence, but the informational content of RNA and amino acid sequences is. The variety of triplets in RNA sequences and the variety of kind of amino acids in a polypeptide chain were related to the sequence information or order of bases in DNA molecules. A discussion of these results in the light of current evolutionary theory provides a basis for the understanding of the control of protein synthesis.

A80-20858 Spatial filtering and mechanisms of perception. A. P. Ginsburg (USAF, Aviation Vision Laboratory, Wright-Patterson AFB, Ohio). In: Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, Pittsburgh, Pa., April 25-27, 1979. Part 1. Pittsburgh, Pa., Instrument Society of America, 1979, p. 185-192. 11 refs.

Attempts have been made to distinguish between visual mechanisms as being space domain feature detectors or transform domain spatial frequency detectors. It is shown that these descriptions may be considered equivalent in terms of producing similar filtered images. Fourier-like transformation, however, appears to be a more accurate description of the filtering process in the case of biological data.

V.P.

A80-20859 Nonlinear interactions in binocular vision. H. R. Wilson (Chicago, University, Chicago, III.). In: Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, Pittsburgh, Pa., April 25-27, 1979. Part 1.

Pittsburgh, Pa., Instrument Society of America, 1979, p. 209-213. 13 refs.

The existence of hysteresis effects in binocular vision is well documented. In addition, it has been shown that binocular hysteresis may occur even when eye movements are not a factor, thus pointing to the existence of neural hysteresis (presumably at the cortical level). The theory of differential equations provides a convenient framework for modeling this neural hysteresis. One approach to the study of nonlinear dynamic phenomena is through the application of Volterra or Wiener kernel expansions; it has been successfully applied to a number of physiological and psychophysical phenomena. However, there is an important class of nonlinear phenomena which cannot be understood within this framework-cooperative phenomena involving hysteresis. In the present paper, a simple cooperative effect in human binocular vision is described, and a physiologically plausible mathematical model for analyzing it is proposed.

V.P.

A80-20860 Interpreting nonlinear systems - The third order kernel of the eye movement control system. S. Klein (California Institute of Technology, Pasadena; Claremont College, Claremont, Calif.). In: Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, Pittsburgh, Pa., April 25-27, 1979. Part 1. Pittsburgh, Pa., Instrument Society of America, 1979, p. 215-222. 15 refs.

White noise stimuli are useful for analyzing nonlinear systems. A technique has been developed which improves the temporal resolution of the measured response. The role of the third order Wiener kernel is examined in an application to the eye movement control system. Unusual aspects of that system are explored. (Author)

A80-20861 Theoretical problems in modeling color grating detection. R. F. Quick, Jr. (Carnegie-Mellon University, Pittsburgh, Pa.). In: Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, Pittsburgh, Pa., April 25-27, 1979. Part 1. Pittsburgh, Pa., Instrument Society of America. 1979. p. 249-252. 10 refs.

The spatial properties of single and double opponent neurons in vision are discussed in relation to their possible effects on chromatic contrast detection by human observers. From measured line-spread data it is argued that double-opponent mechanisms are responsible for some contrast detection results. Sinewave sensitivity curves, on the other hand, give evidence that other mechanisms, possibly single-opponent, are also active at low spatial frequencies. (Author)

A80-20899 Real-time simulation of FLIR and LLLTV Systems for aircrew training. W. L. Foley (USAF, Advanced Systems Div., Wright-Patterson AFB, Ohio). In: Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, Pittsburgh, Pa., April 25-27, 1979. Part 5.

Pittsburgh, Pa., Instrument Society of America, 1979, p. 1737-1746.

The paper deals with simulation of Forward Looking Infrared (FLIR) and Low Light Level TV (LLLTV) Systems for application to training aircrews in performing full-scale mission simulation. Attention is given to simulating of the thermal or visual signatures typical for a total scenario consisting of the sensor, atmosphere, and ground environment that consider time of day, season of year, etc.

VT

A80-21017 Occupational exposure to radio-frequency electromagnetic fields. K. H. Mild (Umea Hospital, Umea, Sweden). *IEEE, Proceedings,* vol. 68, Jan. 1980, p. 12-17, 23 refs.

The paper considers occupational exposure to radio-frequency (RF) electromagnetic (EM) fields in industrial processes in near-field situations where electric and magnetic field strengths are monitored to assess the health hazard. Plastic materials are joined by an RF machine whose electrodes are not shielded and which may produce high level RF fields in the immediate vicinity, exceeding the ANSI standard. A physiotherapist may be exposed to high E and H fields using RF shortwave therapy; the maintenance personnel in FM/TV broadcast towers are subject to intense RF fields, and induction heating equipment used for forging, annealing and brazing can expose operators' hands to magnetic fields.

A80-21018 Electromagnetic radiation from selected telecommunications systems. R. C. Petersen (Bell Telephone Laboratories, Inc., Murray Hill, N.J.). *IEEE, Proceedings*, vol. 68, Jan. 1980, p. 21-24.

The paper describes the instrumentation and measurement techniques used in a study of electromagnetic (EM) energy in radio transmission systems, and summarizes results obtained for high frequency (HF) radio, tropospheric scatter, earth-satellite, and microwave radio relay systems. Power density and electric field measurements were made at selected facilities, including antenna tower locations for point-to-point microwave radio equipment; it was found that the maximum electric field strengths associated with HF radio systems in areas accessible to radio personnel was less than 36 V/m. The maximum power densities associated with tropospheric scatter systems, satellite communication earth stations and point-topoint microwave radio systems were less than 1 microwatt/sq cm; in some cases microwave radio rooms in high building floors showed maximum levels due to VHF and UHF transmitters of a few tens of microwatt/sq cm. A.T.

A80-21019 State of the knowledge for electromagnetic absorbed dose in man and animals. O. P. Gandhi (Utah, University, Salt Lake City, Utah). *IEEE, Proceedings*, vol. 68, Jan. 1980, p. 24-32, 32 refs.

The paper gives the EM absorbed dose for man and animals at various frequencies for the plane wave irradiation condition for different orientations of the body relative to incident fields. Also included are the results for the whole-body absorption for conditions of electrical contact with ground and in the presence of reflecting surfaces of high conductivity and multiple animals. The data are given for the distribution of power deposition in man models for the resonance conditions of highest whole-body electromagnetic absorption. The highlights of the results obtained with proportionately scaled saline- and biological-phantom-filled models of man have been confirmed by experiments with small laboratory animals, from 25-g mice to 2250-g rabbits. (Author)

A80-21020 Electromagnetic dosimetry for models of humans and animals - A review of theoretical and numerical techniques. C. H. Durney (Utah, University, Salt Lake City, Utah). IEEE, Proceedings, vol. 68, Jan. 1980, p. 33-40. 46 refs.

The paper reviews techniques of electromagnetic dosimetry for human and animal models. Numerical techniques, analytical cylindrical models, and geometrical optics methods are described, noting the useful frequency range of each method; analytical techniques included analysis of planar and spherical models, long-wavelength analysis of spheroids and ellipsoids and solutions of the wave equation in spheroidal coordinates. Numerical techniques involved the moment method and the extended boundary condition method to calculate the specific absorption rate in biological models. It is concluded that advancements were made through a combination of techniques that include analytical methods in which Maxwell's equations are solved, and numerical techniques in which large systems of simultaneous equations are solved by matrix inversion or iteration.

A80-21021 Microwave biological effects - An overview. S. M. Michaelson (Rochester, University, Rochester, N.Y.). *IEEE, Proceedings*, vol. 68, Jan. 1980, p. 40-49. 99 refs. Contract No. EY-76-C-02-3490.

The paper presents a review of microwave (MW) biological effects. Principles of biologic experiments are outlined stressing that their reliability depends on proper selection of animal models and extrapolation of data from animals to man, and on correct scaling of results from various species; the cellular-chromosome-genetic effects, the gonads, and neuroendocrine effects are considered, noting that the latter have been interpretated as the result of direct MW interactions with the central nervous system. The behavioral effects, cardiovascular reactions, and hematopoietic results have been covered, along with effects on immunity, and auditory and ocular responses. It is concluded that although there is considerable agreement on the biological effects and potential hazards of MW, there are questions as to the definition of hazard and whether all effects are harmful.

A80-21022 Microwave cataractogenesis. S. F. Cleary (Virginia Commonwealth University, Richmond, Va.). *IEEE, Proceedings,* vol. 68, Jan. 1980, p. 49-55. 52 refs.

A review of the biological effects of electromagnetic radiation and investigations of microwave cataractogenesis is presented. Studies suggest involvement of thermal damage. Time-intensity cataract thresholds for acute exposures of rabbits indicate dose reciprocity, and the induction of lens opacification following repeated exposure at intensities below the threshold for single-dose exposures suggests a cumulative component of lens damage and the existence of repair mechanisms. Cataract induction has been reported in humans exposed to microwave radiation, while acute lens opacification appears to involve thermally induced lens damage at intensities of 100 microwatt/sg cm.

A80-21023 Microwave irradiation and the blood-brain barrier. D. R. Justesen (U.S. Veterans Administration Medical Center; Kansas, University, Kansas City, Kan.). *IEEE, Proceedings*, vol. 68, Jan. 1980, p. 60-67. 55 refs. Research supported by the U.S. Veterans Administration; U.S. Food and Drug Administration Grant No. FD-00650.

The paper examines microwave irradiation and the blood-brain barrier. The mammalian blood-brain barrier (BBB) is believed to participate in regulating the brain fluid environment, and reports of the altered BBB function in small animals after exposure to weak microwave fields show that the tight junctions of the BBB capillaries are loosened by microwaves only at high field strengths that elevate brain temperature. Anatomical data reveal that the tight junctions remain intact, but that enhanced blood-to-brain vesicular transport of normally excluded tracer molecules occurs reversibly in small animals exposed to moderate field strength waves. It is concluded that brief exposure to microwave fields impairs the cardiovascular function, but the effect of long-term exposure is not known. A.T.

A80-21024 The microwave auditory phenomenon. J. C. Lin (Wayne State University, Detroit, Mich.). *IEEE, Proceedings,* vol. 68, Jan. 1980, p. 67-73. 41 refs. Navy-NSF-supported research.

The paper examines electrophysiological activity produced by exposing the brains of laboratory animals to rectangular pulses of microwave energy. These results suggest that a microwave auditory phenomenon is evoked by a mechanism similar to conventional sound reception, and that the primary interaction site is peripheral to the cochlea. It is shown that the peak pressure due to thermal expansion is greater than the radiation pressure or electrostriction, and that the induced sound frequency is only a function of the size and acoustic property of the brain. Several suggestions were made for future research in microwave auditory effect and its health implications.

A.T.

A80-21025 Advances in microwave-induced neuroendocrine effects - The concept of stress. S.-T. Lu, S. M. Michaelson (Rochester, University, Rochester, N.Y.), and W. G. Lotz (U.S. Navy, Naval Aerospace Medical Research Laboratory, Pensacola, Fla.). *IEEE, Proceedings,* vol. 68, Jan. 1980, p. 73-77. 46 refs. Navy-supported research.

The paper examines progress in studies of microwave-induced neuroendocrine effects with respect to the current concepts of neuroendocrine control mechanisms. Recent evidence indicates that neuroendocrine effects are induced by microwave exposure with a threshold intensity required for the onset of the response, with the level of the threshold varying on the specific endocrine parameter. The response of the endocrine systems appears to be a nonspecific stress reaction in the case of adreno-cortical and growth hormone changes, but it is a metabolically specific response to increased energy input in the case of pituitary-thyroid changes.

A.T.

A80-21026 # Epidemiologic studies of microwave effects. C. Silverman (U.S. Public Health Services; U.S. Food and Drug Administration, Rockville, Md.). *IEEE, Proceedings*, vol. 68, Jan. 1980, p. 78-84. 31 refs.

This is a selective review of human epidemiologic studies and related information concerning biologic and health effects of microwave radiation. Following a description of the objectives and methods of epidemiology, the approach to microwave effects is considered and two recent but not yet published studies are described, namely, a study of U.S. naval personnel occupationally exposed to radar, and a study of American Embassy personnel in Moscow. Investigations of several reported or suspected adverse effects are assessed: ocular effects, nervous and behavioral effects, congenital anomalies, and cancer. Suggestions are offered for further epidemiologic research. (Author)

A80-21027 # Soviet and Eastern European research on biological effects of microwave radiation. D. I. McRee (National Institutes of Health, National Institute of Environmental Health

Sciences, Research Triangle Park, N.C.). IEEE, Proceedings, vol. 68, Jan. 1980, p. 84-91. 33 refs.

A review of Soviet and Eastern European research on biological effects of microwave radiation is presented. The literature reports changes in almost all biological systems at exposure power densities less than 10 mW/sq cm, and since 1976 more data has been published on long-term microwave exposures at power density levels below 10 mW/sq cm. Effects on humans, metabolic effects, central nervous system investigations, and neuroendocrine effects are discussed, along with cardiovascular, blood, immunology, reproductive, and cell and virus manifestations. It is concluded that the overview of the Soviet and Eastern European literature indicates a large number of bioeffects at exposures below 10 mW/sq cm, with a significant number of biological changes reported below 1 mW/sq cm. A.T.

A80-21028 Study of effects of long-term low-level rf exposure on rats - A plan. A. W. Guy, C.-K. Chou, R. B. Johnson, and L. L. Kunz (Washington, University, Seattle, Wash.). *IEEE, Proceedings*, vol. 68, Jan. 1980, p. 92-97. 18 refs. U.S. Rehabilitation Services Administration Grant No. 16-P-56818; Contract No. F33615-78-C-0631.

The study is designed to simulate the chronic exposure of man to 450-MHz radio-frequency (rf) radiation at an incident power density of 1 mW/sq cm. This paper presents a plan for conducting a lifetime exposure study involving two phases of work. The first phase, up to March 1980, is being spent in preparation for the chronic study. During the second phase, 200 rats, 100 experimental and 100 control, will be exposed 22 h/day over their lifetime to pulse-modulated 2450-MHz rf fields at an incident power density less than 500 microwatts/sq cm. The state of health of each animal will be assessed periodically throughout the exposure period until the death of the animal. Blood chemistry parameters, mortality rates, histopathology, body weight, and water and food consumption will be the biological endpoints of this study. The pulse-modulated fields consist of 16 pulse groups/sec (25 pulses/group) with a pulse duration of 10 microsec and a period of 500 microsec. (Author)

A80-21029 # Biological effects of electric and magnetic fields associated with ELF communications systems. J. D. Grissett (U.S. Navy, Naval Aerospace Medical Research Laboratory, Pensacola, Fla.). IEEE, Proceedings, vol. 68, Jan. 1980, p. 98-104. 29 refs.

The paper presents an evaluation of the biological effects of electric and magnetic fields associated with the extremely low frequency (ELF) submarine communication system. The design of the ELF system is described noting that the magnetic fields at the earth's surface above the system antenna would average 0.02 mT and the electric field gradient would be 0.07 V/m. It was found that ELF fields are not likely to present a genetic hazard, and should have no effect on fertility and cell growth. Studies of serum triglyceride levels in humans showed no effects from ELF fields, but no conclusive data could be found regarding their effect on circadian rhythms and electrosensitive fish. It was concluded that while the possibility of a physiological perturbation from ELF fields exists, there was no experimental or theoretical basis to assume a hazard at exposure levels of 0.02 mT and 0.07 V/m.

A80-21030 RF-field interactions with biological systems - Electrical properties and biophysical mechanisms. H. P. Schwan and K. R. Foster (Pennsylvania, University, Philadelphia, Pa.). *IEEE*, *Proceedings*, vol. 68, Jan. 1980, p. 104-113. 71 refs, Contract No. N00D14-79-C-0392.

Electrical properties of tissues, macromolecular solutions, and cell membranes are summarized at frequencies from the extra low frequency (ELF) to microwave range. Previously presented dielectric data are supplemented by new results and a more detailed discussion of the physical mechanisms for the observed temperature coefficients of the dielectric properties. The dielectric data are discussed in terms of the interaction mechanisms which give rise to observed relaxational effects. Possible mechanisms for nonthermal weak interactions between radio-frequency (RF) energy and tissues are discussed and evaluated. (Author)

A80-21031 Cellular effects: Millimeter waves and Raman spectra - Report of a panel discussion. D. L. Jaggard and J. L. Lords (Utah, University, Salt Lake City, Utah). *IEEE, Proceedings*, vol. 68, Jan. 1980, p. 114-119. 12 refs.

On June 22, 1979, a panel discussion was held at the Bio-electromagnetics Symposium in Seattle, Wa. In this report, the statements of the panel members are summarized and several common suggestions are commented on. Written abstracts which correspond to the oral presentations of most of the panel members are also included. (Author)

A80-21032 # Frequency and power windowing in tissue interactions with weak electromagnetic fields. W. R. Adey (U.S. Veterans Administration Hospital; Loma Linda University, Loma Linda, Calif.). IEEE, Proceedings, vol. 68, Jan. 1980, p. 119-125. 47 refs. Research supported by the U.S. Department of Energy; Grant No. PHS-1-R01-678-01; Contracts No. N00014-76-C-0421; No. DE-A101-79ET29078.

The paper examines the frequency and power windowing in tissue interactions with weak electromagnetic fields. Nonionizing electromagnetic (EM) fields raising temperature orders of magnitude less than 0.1 C may result in major physiological changes not attributable to raised temperature per se, and have produced chemical, physiological, and behavioral changes only within windows in frequency and incident energy. Two different intensity windows have been observed, one for ELF tissue gradients about 10 to the -7th power V/cm, and one for amplitude modulated RF and microwave gradients about 0.1 V/cm. Coupling to living cells requires amplifying mechanisms based on nonequilibrium processes; these cooperative processes are important in immune and hormonal responses, and in nerve cell excitation. Polyanionic proteinaceous material on cell membrane surfaces appear to be the site of detection of these weak molecular and neuroelectric stimuli.

A80-21033 Steady magnetic fields in noninvasive electromagnetic flowmetry. S. X. Salles-Cunha (Wisconsin, Medical College, Milwaukee, Wis.), J. H. Battocletti, and A. Sances, Jr. (Wisconsin, Medical College, Milwaukee; U.S. Veterans Administration Medical Center, Wood, Wis.). *IEEE, Proceedings*, vol. 68, Jan. 1980, p. 149-155. 26 refs. Research supported by the U.S. Veterans Administration Medical Center; Grant No. NIH-NO1-HI-2216.

Transcutaneous electromagnetic flowmetry measures, non-invasively, the induced voltage generated by the flow of blood through a region immersed in a magnetic field. Steady magnetic fields of less than 0.5 T have been used to measure pulsatile popliteal, brachial, and bilateral common carotid blood flow in normal subjects, in patients with arteriovascular disease, and in subjects with arteriovenous fistula surgically created for hemodialysis. In these studies, field magnitude and time of exposure were below the limits suggested by the two exposure guidelines available. Flow rate was calculated from the measured voltages and geometrical and electrical parameters using equations developed for three-media (body segment-vessel-blood) cylindrical models, based on electromagnetic theory. The 68 measurements reported here are in the expected range. (Author)

A80-21038 # The effect of certain extremal factors on the human auditory function (Vozdeistvie nekotorykh ekstremal'nykh faktorov na slukhovuiu funktsiiu cheloveka). V. V. Diskalenko. Voenno-Meditsinskii Zhurnal, Oct. 1979, p. 46-49. In Russian.

The paper summarizes data on the effects of certain extremal factors, including nervous-emotional stress, prolonged hypokinesia, and vestibular-optokinetic stimuli, on the auditory function of healthy people. These factors are typical for operators of military equipment and usually act together on the organism. The responses of the auditory system to such factors were studied from tonal audiograms, auditory discomfort levels, sensitivity to ultrasound, and data on auditory masking. Data indicate definite functional changes in the auditory system under the influence of the extremal factors.

A80-21039 # The effect of aircraft noise on the functional state of human operators (Vliianie aviatsionnogo shuma na funktsional'noe sostoianie organizma operatorov). V. I. Zorile, V. S. Kuznetsov, and G. I. Tarasenko. *Voenno-Meditsinskii Zhurnal,* Oct. 1979, p. 49-51. In Russian.

Noise intensity tests at 100, 110, and 120 dB were conducted on eight volunteers aged 25 to 40. The functions studied were auditory sensitivity threshold, heart rate, respiratory minute volume, operator task performance involving two-dimensional compensatory tracking, and a reserve ability to accept and process additional information that demands active redirection of attention. Results indicate that intense aircraft noise tends to produce changes in functional state and to reduce the psychophysiological reserve capabilities of the operator.

A80-21040 # The effect of age and vitamin provision of pilots on their night vision characteristics (Vliianie vozrasta i vitaminnoi obespechennosti organizma letchika na pokazateli nochnogo zreniia). V. V. Koblianskii. Voenno-Meditsinskii Zhurnal, Oct. 1979. p. 62, 63. In Russian.

STAR ENTRIES

N80-14669 California Univ., San Diego.

KINEMATIC ANALYSIS OF OSMOTIC PROCESSES UNDER NON-EQUILIBRIUM CONDITIONS Ph.D. Thesis

Huacuz Villamar 1979 126 p

Avail: Univ. Microfilms Order No. 7926696

The general conditions for osmotic flow are derived theoretically. It is shown that when a binary mixture is separated from one of its components by means of a barrier permeable only to that same component, a necessary and sufficient condition for the balance of linear momentum in the system is the flow of mass into the mixture, across the semipermeable barrier. The equations for osmotic equilibrium under different sets of forces are derived from the general equation of motion for the osmotic system. It is concluded that the presence of a semipermeable membrane is a sufficient condition for the net motion of the binary mixture from its original equilibrium position, but it is not necessary since the membrane could be substituted by any other 'external' force acting selectively on one of the components of the mixture. It is also concluded that osmotic flow in a binary mixture is a necessary and sufficient condition to balance the linear momentum of the system. The results are applied to a series of membranes of different permeabilities and are used to explain the process of water transport in living organisms.

Dissert. Abstr.

N80-14670# Materials Research Labs., Melbourne (Australia). MICROBIAL COLONIZATION OF MATERIALS AT INNIS-FAIL, QUEENSLAND

F. John Upsher Aug. 1979 26 p refs Original contains color illustrations

(MRL-TN-428; AR-001-836) Avail: NTIS HC A03/MF A01 Materials were exposed under a glass canopy to investigate microbial colonization. Two series of exposures were made; one starting in the cool dry winter, the other in the hot-wet season. Growth of microorganisms was slow, particularly of algae which were not apparent until 30 weeks; tardiness was attributed to the samples being protected from rain so that the organisms were dependent upon atmospheric moisture and dew. An increase in the amount of growth was apparent after any week in which the mean relative humidity exceeded 87% or when 80% was exceeded for more than 125 hours. Cotton and wood provided the earliest growth and also supported the greatest amount and variety of fungi. Heavier growths were observed on acrylic paint and poly(vinyl chloride) after prolonged exposure. Cladosporium was the dominant fungal genus, being present on almost every occasion any fungus was detected.

N80-14671*# National Aeronautics and Space Administration, Washington, D. C.

MICROMORPHOLOGY OF NEUROHYPOPHYSIS OF RATS UNDER EXPERIMENTAL CONDITIONS

E. R. Meitner and E. Proksova Dec. 1979 7 p refs Transl. into ENGLISH from Biologia (Bratislava), v. 25, no. 12, 1970 p 857-860 Transl. by SCITRAN, Santa Barbara, Calif. (Contract NASw-3198)

(NASA-TM-75947) Avail: NTIS HC A02/MF A01 CSCL 06C

The changes of the quantity of neurosecretory substance in neurohypophysis of rats under various experimental conditions are investigated. Comparing to the norm the quantity of neurosecretion after a long stay in the dark was larger. In animals subjected to immobilization stress the picture of neurohypophysis remained unchanged. It changed only in correlation with the administered water. Results indicate that the immobilization stress,

in contradistinction to dolorose stress, has no substantial influence upon the quantity of neurosecretion in neurohypophysis. R.C.T.

N80-14672*# National Aeronautics and Space Administration, Washington, D. C.

RNA CONTENT IN MOTOR AND SENSORY NEURONS AND SURROUNDING NEUROGLIA OF MOUSE SPINAL CORD UNDER CONDITIONS OF HYPODYNAMIA AND FOLLOWING NORMALIZATION

V. A. Brumberg and L. Z. Pevzner Dec. 1979 15 p refs Transl. into ENGLISH from Tsitologiya (USSR), v. 10, no. 11, 1968 p 1452-1459 Transl. by Kanner (Leo) Associates, Redwood City, Calif. Original doc. prep. by Academy of Sci. (Leningrad) (Contract NASw-3199)

(NASA-TM-75983) Avail: NTIS HC A02/MF A01 CSCL OSC

Male white mice were subjected to two and three week hypodynamia and then decapitated. Cytoplasmic RNA content per cell was measured by means of ultraviolet cytospectrometry. Changes in RNA content are shown, and the dynamics of the reparative processes of cells are discussed.

R.C.T.

N80-14673*# National Aeronautics and Space Administration, Washington, D. C.

THE EFFECTS OF HYPODYNAMIA AND HYPOKINESIA ON THE ARTERIAL BED OF PELVIC LIMB MUSCLES IN THE RABBIT

N. E. Sokolov Dec. 1979 9 p refs Transl. into ENGLISH from Arkh. Anat., Gistol. Embriol. (USSR), v. 62, no. 4, 1972 p 48-52 Transl. by Kanner (Leo) Associates, Redwood City, Calif. Original doc. prep. by Pavlov First Leningrad Medical Inst.

(Contract NASw-3199)

(NASA-TM-75984) Avail: NTIS HC A02/MF A01 CSCL 06C

The effects of hypodynamia on the arterial bed in the muscles and adjacent structures in limbs of rabbits were subject to investigation. Anatomical methods of study showed that hypodynamia produced morphological changes in the intraorganic arterial system in the muscles, fascia, and adipose tissue of the immobilized limb. These changes proved stable and were retained for six months.

 ${\bf N80\text{-}14674}^{*}\#$ National Aeronautics and Space Administration, Washington, D. C.

EFFECT OF RHYTHMIC PHOTOSTIMULATION ON MON-KEYS WITH HYPERKINESIS OF POST-ENCEPHALITIC GENESIS

 V. Danilov (USSR Academy of Medical Sciences) and N. N. Kudrayatseva (USSR Academy of Medical Sciences) Dec. 1979
 12 p refs Transl. into ENGLISH from Fiziol. Zh. SSSR, (USSR), v. 68, no. 4, 1972 p 511-516 Transl. by Kanner (Leo) Associates, Redwood City, Calif.

(Contract NASw-3199)

(NASA-TM-75986) Avail: NTIS HC A02/MF A01 CSCL 06C

In hyperkinetic monkeys a response opposite to that of healthy monkeys was observed during rhythmic photostimulation (frequency 3, 9, 18, 20, and 25/sec), i.e., the hyperkinesis disappeared. The significance of rhythmic excitatory cycles for interconnections between different brain structures is discussed.

Author

N80-14675*# Jet Propulsion Lab., California Inst. of Tech.,

A CONTROLLED RATE FREEZE/THAW SYSTEM FOR CRYOPRESERVATION OF BIOLOGICAL MATERIALS

V. J. Anselmo and R. G. Harrison 1 Jun. 1979 182 p Prepared for Union Carbide Co. (Contract NAS7-100)

(NASA-CR-162531; JPL-Pub-79-91) Avail: NTIS HC A09/MF A01 CSCL 06B

A system which allows programmable temperature-time control for a 5 cc sample volume of an arbitrary biological material was constructed. Steady state and dynamic temperature control was obtained by supplying heat to the sample volume through

resistive elements constructed as an integral part of the sample container. For cooling purposes, this container was totally immersed into a cold heat sink. Sample volume thermodynamic property data were obtained by measurements of heater power and heat flux through the container walls. Using a mixture of dry ice and alcohol at -79 C, sample volume was controlled from +40 C to -60 C at rates from steady state to + or -65 C/min. Steady state temperature precision was better than 0.2 C while the dynamic capability depends on the temperature rate of change as well as the thermal mass of the sample and the container.

N80-14676*# National Aeronautics and Space Administration. Langley Research Center, Hampton, Va.

INVESTIGATION OF EFFECTS OF TEMPERATURE, SALIN-ITY, AND ELECTRODE DESIGN ON THE PERFORMANCE OF AN ELECTROCHEMICAL COLIFORM DETECTOR

David C. Grana Nov. 1979 54 p refs

(Contract EPA-IAG-D7-0053)

(NASA-TM-80130; EPA-600/4-79-075) NTIS Avail:

HC A04/MF A01 CSCL 06B

The results of two research programs to determine the optimum detector design for measuring fecal coliforms in saline waters for operational systems are presented. One program was concerned with the effects of temperature and salinity on endpoint response time, and the other, the interaction between electrode configurations and the test organisms. Test results show that the endpoint response time is related to salinity and seawater temperature; however, these results can be minimized by the correct choice of growth media. Electrode configurations were developed from stainless steel, Parlodion-coated stainless steel, and platinum that circumvented problems associated with the commercial redox electrodes.

N80-14677# European Space Agency, Paris (France). BIOLOGY AND MEDICINE IN SPACE: RESEARCH OPPORTUNITIES OFFERED BY SPACELAB. AN INVITA-TION TO EUROPEAN INVESTIGATORS

Hilding Bjurstedt, ed. Aug. 1979 56 p refs (ESA-BR-01) Avail: NTIS HC AO4/MF AO1; ESA, Paris FF 50

The results and experience gained from experiments in space, the current position, and the research opportunities envisaged for the future are reviewed by biologists and medical scientists for the purpose of encouraging investigators to propose experiments, and to disseminate information to the life sciences community. The main subjects covered are: Spacelab, areas of research opportunity, human physiology, cell and developmental biology, plant biology, radiobiology, exobiology and bioengineer-Author (ESA)

N80-14678# Advisory Group for Aerospace Research and Development, Paris (France).

RECENT ADVANCES IN AERONAUTICAL AND SPACE

Raymond H. Murray, ed. (Mich. State Univ., East Lansing) Sep. 1979 80 p refs in ENGLISH and FRENCH Presented at the Aerospace Med. Panel's Spec. Meeting, Brussels, 22-26 Jan. 1979

(AGARD-CP-265; ISBN-92-835-0250-7) Avail: NTIS HC A05/MF A01

The selection and life support of aircrews and spacecrews, including the European payload specialists for shuttle/Spacelab missions are discussed. Physiological factors in space operations are examined, as well as the medical and physiological problems addressed during the development and operation of commercial supersonic vehicles.

N80-14679# Advisory Group for Aerospace Research and Development, Paris (France).

PROBLEMS RELATED TO MEDICAL CRITERIA FOR THE SELECTION OF MILITARY NAVIGATION PERSONNEL [PROBLEMES RELATIFS AUX CRITERES MEDICAUX DE SELECTION DU PERSONNEL NAVIGANT MILITAIRE

E. Evrard In its Recent Advan, in Aeron, and Space Med. Sep. 1979 22 p refs in FRENCH

Avail: NTIS HC A05/MF A01

Visual, auditory and vestibular, and psychological or psychiatric criteria for personnel selection are considered. Specific problems discussed relate to (1) special possible criteria for determining precociousness and the immediate problem of the specialization of operational personnel; (2) a possible raising of the standards for aviators destined to pilot new generation fighter aircraft; and (3) female navigational personnel. The standardization of visual and auditory criteria is recommended as well as additional research on the problems considered in order to reduce the rate of elimination during the pilot training course. Transl. by A.R.H.

N80-14680# Royal Air Force Inst. of Aviation Medicine, Farnborough (England).

AN ADVANCED OXYGEN SYSTEM FOR FUTURE COMBAT **AIRCRAFT**

J. Ernsting In AGARD Recent Advan. in Aeron, and Space Med. Sep. 1979 17 p refs

Avail: NTIS HC A05/MF A01

The operational and physiological requirements for an advanced oxygen system for future high performance combat aircraft are considered and reviewed. It is concluded that such an oxygen system should employ a molecular sieve on board oxygen generation system, pressure premix for dilution of the oxygen by air and a twin demand regulator package. The principles of operation of such a system are considered and a design is proposed.

N80-14681# Deutsche Forschungs- und Versuchsanstalt fuer Luft- und Raumfahrt, Bonn (West Germany). Fluamedizin.

THE EUROPEAN APPROACH TO THE SELECTION AND TRAINING OF SL PAYLOAD SPECIALISTS

K. E. Klein and J. R. Hordinsky In AGARD Recent Advan. in Aeron, and Space Med. Sep. 1979 12 p refs

Avail: NTIS HC A05/MF A01

The completed selection of European payload specialists (PS) for the first Spacelab mission (SL-1) is described. Future developments in European selection programs are projected. The immediate training requirements for the SL-1 PS are described. The integration of such varied training categories as biomedical and physical with the more general SL experiment training is reviewed. The usefulness of mission simulations is also dis-

N80-14682*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, Tex.

PHYSIOLOGICAL FACTORS IN SPACE OPERATIONS. EMPHASIS ON SPACE SHUTTLE

Sam L. Pool, Paul C. Rambaut, and Jerry L. Homick In AGARD Recent Advan. in Aeron. and Space Med. Sep. 1979 12 p.

Avail: NTIS HC A05/MF A01 CSCL 06P

Problems such as space motion sickness, redistribution of body fluids, and cardiovascular deconditioning are of concern in short-duration space shuttle flights. The expanded participation of nonastronaut crewmembers or payload specialists in these flights increases the life scientists' interest in the space shuttle flights. Problems such as loss of skeletal mass, decreased red blood cell production, and numerous endocrine changes are of more concern on long-duration flights. The Life Sciences Program is therefore concerned with a wide variety of problems that range from the applied to the basic. The common thread is biology; the context is space. Several physiological factors associated with space shuttle operations are summarized including space motion sickness, cardiovascular deconditioning, bone and muscle loss, hematology, fluid and electrolyte changes, reentry g-forces, radiation safety, noise, atmosphere, extravehicular activity, toxicology, nutrition, biowaste, and health maintenance.

Author

N80-14683# Medical de l'Aeronautique Civile, Paris (France). SUPERSONIC AERIAL TRANSPORT: MEDICAL AND PHYSIOLOGICAL ASPECTS [LE TRANSPORT AERIEN SUPERSONIQUE ASPECTS MEDICO-PHYSIOLOGIQUES

Jean Raboutet In AGARD Recent Advan. in Aeron. and Space Med. Sep. 1979 7 p In FRENCH

Avail: NTIS HC A05/MF A01

From 1964 to 1974, two medical subgroups, one French and one British, researched the medical and physiological problems presented by supersonic air transportation. All the problems were addressed by committees of specialists that included physicians. physicists, chemists, and engineers. Thus, the loss of pressurization, ozone, ionizing radiation, noise, visual problems, and air conditioning were the objects of profound study. Very satisfying solutions were found. In certain cases, notably ozone and cosmic radiation, it could be proved that it was a matter of false problems, and that supersonic flight at 17,000 meters offered no danger. As the consequence of all the favorable results obtained, the Concorde could easily obtain the authorization necessary for flight.

Transl. by A.R.H.

N80-14684* National Aeronautics and Space Administration. Lewis Research Center, Cleveland, Ohio.

INTRA-OCULAR PRESSURE NORMALIZATION TECHNIQUE AND EQUIPMENT Patent

Edward F. Baehr, inventor (to NASA) Issued 12 Jun. 1979 5 p Filed 31 Aug. 1977 Supersedes N77-30736 (15 - 21, p 2839)

(NASA-Case-LEW-12955-1; US-Patent-4,157,718;

US-Patent-Appl-SN-829318; US-Patent-Class-128-276) Avail: US Patent and Trademark Office CSCL 06B

A method and apparatus is described for safely reducing abnormally high intraocular pressure in an eye during a predetermined time interval. This allows maintenance of normal intraocular pressure during glaucoma surgery. A pressure regulator of the spring-biassed diaphragm type is provided with additional bias by a column of liquid. The hypodermic needle can be safely inserted into the anterior chamber of the eye. Liquid is then bled out of the column to reduce the bias on the diaphragm of the pressure regulator and, consequently, the output pressure of the regulator. This lowering pressure of the regulator also occurs in the eye by means of a small second bleed path provided between the pressure regulator and the hypodermic needle.

Official Gazette of the U.S. Patent and Trademark Office

N80-14685 Kansas State Univ., Manhattan. MODELING OF BLOOD FLOW IN VESSELS OF THE MICROCIRCULATION Ph.D. Thesis

Pattarapan Prasassarakich 1979 178 p

Avail: Univ. Microfilms Order No. 7926572

A mathematical model of blood flow in rigid straight cylindrical and tapered tubes was developed. The similarity between blood flow in small vessels with oil water flow in glass tubes was investigated. A concentric annular flow (CAF) model with a cell free plasma layer surrounding a continuous core of cells was proposed to describe blood flow in small tubes < 400 micrometers. The resulting pressure flow behavior calculated from this model agrees very well with experimental results. The plasma layer was found to be a constant; independent of shear stress, tube diameter, and feed hematocrit. Results also indicate that the CAF model qualitatively predicts the Fahraeus effect and quantitatively predicts the Fahraeus-Lindqvist effect.

Dissert. Abstr.

N80-14686 California Univ., Riverside.

THE INTERACTION OF OZONE WITH THE HUMAN **ERYTHROCYTE Ph.D. Thesis**

Alan Edward Koontz 1979 246 p

Avail: Univ. Microfilms Order no. 7924289

In order to examine the biochemical events of oxidant injury which lead to edema, the human red blood cell studied after exposure in vitro to high concentrations (45 nMoles or O3/10 to the 6th power cells maximum) of oxone for short periods. Changes in outdated cells, pre-incubated with adenosine to restore ATP levels, in outdated cells not pre-incubated, and in resealed ghosts produced from the outdated cells are described. The sensitivity of certain membrane sites such as glyceraldehyde-3phosphate dehygrogenase and the ouabain binding site evidences the reactivity of oxone with a relatively small number of membrane components, which may be responsible for the generation of a permeability change, cation pump inhibition, or membrane structural modification in the absence of gross internal oxidation, leading to edematous conditions in red cells and other tissues exposed to oxidants. Dissert. Abstr.

N80-14687* National Aeronautics and Space Administration. Pasadena Office, Calif.

DIALYSIS SYSTEM Patent

William A. Mueller, inventor (to NASA) (JPL) Issued 13 Jun. 1978 6 p Filed 28 Feb. 1977 Sponsored by NASA (NASA-Case-NPO-14101-1; US-Patent-4,094,775;

US-Patent-Appl-SN-772434; US-Patent-Class-210-22: US-Patent-Class-210-321B) Avail: US Patent and Trademark Office

The improved hemodialysis system utilizes a second polymeric membrane having dialyzate in contact with one surface and a urea decomposition solution in contact with the other surface. The membrane selectively passes urea from the dialyzate into the decomposition solution, while preventing passage of positively charged metal ions from the dialyzate into the solution and ammonium ions from the solution into the dialyzate.

Official Gazette of the U.S. Patent and Trademark Office

N80-14688*# National Aeronautics and Space Administration, Washington, D. C.

EFFECT OF PROLONGED HYPOKINESIA ON TISSUE **BLOOD FLOW**

Z. P. Levites and V. F. Fedotova Dec. 1979 7 p refs Transl. into ENGLISH from Eksp. Khir. Anesteziol. (USSR) no. 3, May/Jun. 1974 p 79-80 Transl. by Scientific Translation Service, Santa Barbara, Calif.

(Contract NASw-3198)

(NASA-TM-76005) Avail: NTIS HC A02/MF A01 CSCL 06P

The influence of hypokinesia on the blood flow in the tissues of rabbits was studied. Motor activity of animals was restricted during 90 days and blood flow recorded through resorption rate of Nal-131. Perfusion of tissues under the influence of hypokinesia was found to be reduced.

N80-14689*# Jet Propulsion Lab., California Inst. of Tech., Pasadena.

SYNTHESIS AND BIOLOGICAL SCREENING BY NOVEL **HYBRID FLUOROCARBON HYDROCARBON COMPOUNDS** FOR USE AS ARTIFICIAL BLOOD SUBSTITUTES Second Annual Report, Jul. 1977 - Jul. 1978

J. Moacanin, K. Scherer, A. Toronto (Utah Biological Test Lab., Salt Lake City), D. Lawson, T. Terranova, A. Yavrouian, L. Astle (Utah Biological Test Lab., Salt Lake City), S. Harvey (Utah Biological Test Lab., Salt Lake City), and D. H. Kaaelble (Rockwell Intern., Thousand Oaks, Calif.) 15 Oct. 1979 276 p. refs Sponsored in part by NIH

(Contract NAS7-100)

(NASA-CR-162537; JPL-Pub-79-36) HC A13/MF A01 CSCL 06A

A series of hybrid fluorochemicals of general structure R(1)R(2)R(3)CR(4) was prepared where the R(i)'s (i = 1,2,3) is a saturated fluoroalkyl group of formula C sub N F sub 2n+1, and R(4) is an alkyl group C sub n H sub 2n+1 or a related moiety containing amino, ether, or ester functions but no CF bonds. Compounds of this class containing approximately eight to twenty carbons total have physical properties suitable for use as the oxygen carrying phase of fluorochemical emulsion artificial blood. The chemical synthesis, and physical and biological testing of pure single isomers of the proposed artificial blood candidate compounds are included. Significant results are given.

N80-14690# Aerospace Medical Research Labs., Wright-Patterson AFB, Ohio.

DERIVATION OF PRESBYCUSIS AND NOISE INDUCED PERMANENT THRESHOLD SHIFT (NIPTS) TO BE USED FOR THE BASIS OF A STANDARD ON THE EFFECTS OF NOISE ON HEARING

Daniel L. Johnson Sep. 1978 53 p refs Sponsored in part by EPA

NTIS

NTIS

(AF Proj. 7231)

(AD-A071310; AMRL-TR-78-128) Avail:

HC A04/MF A01 CSCL 06/19

This report provides various sets of tables that attempt to summarize much of the existing knowledge of the expected effects of noise on the hearing threshold levels of a population. Relations between noise exposure and Noise Induced Permanent Threshold Shift (NIPTS) for different audiometric frequencies are provided. Six different data sets of presbycusis (the effects of aging on hearing thresholds) are provided. Details for combining the effect of NIPTS to different presbycusis bases are provided. Three methods are suggested for presentation of hearing loss data. These are: (1) direct use of NIPTS, (2) calculation of hearing risk (the change in percent of the population whose hearing exceeds a certain value, and (3) use of a value (called units of potential compensation) that is related to the total compensation that might be paid due to hearing loss. The last method is new and was developed especially because of criticisms of the first two methods. The combined average of the frequencies of 500 Hz, 1000 Hz, 2000 Hz and 3000 Hz are analyzed in great detail and 10 tables are provided for describing the effects of noise on this frequency combination. A computer program for calculating hearing risk and units of potential compensation is provided.

N80-14691# Army Research Inst. of Environmental Medicine, Natick, Mass.

THREE INSTRUMENTS FOR ASSESSMENT OF WBGT AND A COMPARISON WITH WGT (BOTSBALL)

B. Onkaram, L. A. Stroschein, and R. F. Goldman 14 Sep. 1979 28 p refs

(DA Proj. 3E1-62777-A-845)

(AD-A074979; USARIEM-M-24/79) Avail:

HC A03/MF A01 CSCL 06/19

Environmental heat stress, expressed as the ambient wet bulb globe temperature (WBGT), was measured using three different WBGT instruments: (a) the conventional shaded dry bulb, 15.2 cm black globe and naturally convected wet bulb thermometers; (b) a miniaturized thermometer kit; (c) a commercial WBGT instrument using thermistor sensors, and the WBGT was compared with (d) the ambient wet globe temperature (WGT) measured by a Botsball. Visual observations were made on the instruments at regular intervals and an automated data collection system was also used to obtain data from thermocouples attached to the instruments. Statistically significant differences in WBGT readings were found among the instruments; however, the difference for a given environment was usually less than 0.5 C. Readings taken by visual observations resulted in WBGT values which differed by less than 0.3 C from those calculated from the automated data collection system. By using an equation derived for the Botsball, WBGT - 1.044 WGT - 0.187 in C, it is possible to convert the Botsball thermometer dial to indicate the conventional WBGT for outdoor environments; it then becomes a simple instrument for assessing environmental heat stress at the work site.

N80-14692# Anthropology Research Project, Yellow Springs. Ohio.

ANTHROPOMETRIC SIZING, FIT-TESTING AND EVALUATION OF THE MBU-12/P ORAL-NASAL OXYGEN MASK Milton Alexander (Aerospace Med. Res. Lab.), John T. McConville, and Ilse Tebbets Wright-Patterson AFB ARML Aug. 1979 33 p refs

(Contract F33615-79-C-0511; AF Proj. 7184)

(AD-A074723; AMRL-TR-79-44) Avail: NTIS

HC A03/MF A01 CSCL 06/17

This report describes the anthropometric sizing procedures used in the developement of the MBU-12/P oral-nasal oxygen mask and documents results of subsequent fit-testing and evaluation of the mask. A successor to the MBU-5/P, the MBU-12/P is designed to withstand the G and Ω forces in the newer high performance aircraft as well as to provide a better

fit and improved visibility. Sizing analysis and fit-testing revealed that four sizes of the MBU-12/P are sufficient to cover the USAF male flying population: the anthropometry and statistics upon which this decision was based are described in this report. Also documented here are the results of a number of ground and flight tests conducted over a period of four years which provide both objective and subjective evidence that the MBU-12/P is a well fitting mask which successfully achieves its design objectives. Subjects of all the tests were experienced aircrew whose head and face measurements were representative of a full range of the USAF flight crew population. Results of all the fit test/evaluations revealed a high degree of user acceptance and a decided preference for the MBU-12/P when compared to the older MBU-5/P.

N80-14693# Armed Forces Radiobiology Research Inst.,

EARLY TRANSIENT INCAPACITATION: A REVIEW WITH CONSIDERATION OF UNDERLYING MECHANISMS

D. O. Carpenter Apr. 1979 19 p refs (AD-A071803; AFRRI-SR-79-1) HC A02/MF A01 CSCL 06/18

Avail: NTIS

Early transient incapacitation (ETI), which is a decrement in the performance of a specified task resulting from the effects of supralethal ionizing radiation exposures, has been observed in a number of animal species. Since nuclear weapons result in radiation fields sufficient to cause ETI in personnel that may be exposed, an understanding of the mechanism of this phenomenon is essential for the development of a rational plan for preventing or reversing the effect. This report is a review of the behavioral experiments concerning ETI and presents a critical analysis of available experimental information as to the cause of the phenomenon. It appears that the primary cause of ETI in experimental animals is probably faintness resulting from a fall in cerebral blood flow due to the direct action of histamine on blood vessel smooth muscle cells.

N80-14694# Naval Postgraduate School, Monterey, Calif. A CONSIDERATION OF FACTORS CONTRIBUTING TO STRENGTH DIFFERENCES IN MEN AND WOMEN M.S. Thesis

Theodore M. Printy Jun. 1979 80 p refs (AD-A072671) Avail: NTIS HC A05/MF A01

The expansion of opportunities for women in today's military has increased the importance of understanding how and why men and women differ in strength, stamina, and work capacity. The present effort discusses how the different physiological/ anatomical characteristics of the sexes form a basis for physical strength differences. Other factors, such as age, stature, weight, cultural influences, biomechanics, and training contribute to the significant differences in physical strength capabilities which are demonstrated both as to scope and degree. With an understanding of the strength capabilities of men and women and a comprehensive understanding of job requirements, the effective and efficient utilization of both sexes may be achieved.

N80-14695# Ohio State Univ., Columbus. Dept. of Engineering Mechanics

MEASUREMENT OF RESISTIVE TORQUES IN MAJOR HUMAN JOINTS Final Report, 1 Apr. 1976 - 30 Sep. 1978

Ali Erkan Engin Wright-Patterson AFB AMRL Apr. 1979 156 p refs

(Contracts F33615-76-C-0505; DOT-HS-6-01331; AF Proj. 2312)

(AD-A071170; AMRL-TR-79-4) Avail: NTIS HC A08/MF A01 CSCL 06/16

The major articulating joints considered are the shoulder, knee, hip, elbow and ankle. Due to drastic postmortem changes of the biomechanical response of the body tissues, the research is conducted with some obvious limitations on live human subjects. The major components of the specially designed and built experimental apparatus are a subject restraint system, a global force applicator (GFA), and an exoskeletal device (ESD). The ESD is used in monitoring the kinematics of the motion between the fixed and the moving body segments and the forces are

applied to the moving body segment by means of the GFA. Design of both the ESD and GFA are similar, each containing eight high precision potentiometers. The experimental apparatus and the associated theoretical concepts are utilized to achieve at least three major tasks. These tasks are the quantitative determination of (a) the voluntary range of motion (b) the resistive force and moments and (c) the resistive torques for the rotational motion of the body segments about their long bone axes. Although the majority of the results presented are on the passive resistive force, moment and torques for the major articulating joints of three subjects, some results on the magnitudes of the active resistive muscle force, moment and torque vectors are also presented for the same subjects.

N80-14696# Illinois Univ. at the Medical Center, Chicago. School of Public Health.

HEALTH EFFECTS OF AEROSOLS EMITTED FROM AN ACTIVATED SLUDGE PLANT

B. Carnow, R. Northrop, R. Wadden, S. Rosenbert, and J. Holden May 1979 232 p refs (Grant EPA-R-805003)

(PB-299583/5: EPA-600/1-79-019) Avail: NTIS

HC A11/MF A01 CSCL 06F

The health of persons residing near sewage treatment plants was studied to determine whether or not the health of persons exposed to aerosols emitted by a sewage treatment plant is significantly different from persons living in lesser exposed areas around the plant site.

GRA

N80-14697*# National Aeronautics and Space Administration. Langley Research Center, Hampton, Va.

PRELIMINARY INVESTIGATION OF PILOT SCANNING TECHNIQUES OF DIAL POINTING INSTRUMENTS

Randall L. Harris, Sr. Nov. 1979 22 p refs (NASA-TM-80079) Avail: NTIS HC A02/MF A01 CSCL

Two pilots' methods of looking at instruments with needle pointers in a fixed base helicopter simulation were observed. A total of 45 runs were analyzed for each pilot. The data indicated that two apparently different techniques were being used; one looking at the needle point, the other looking at a fixed spot on the instrument and reading the needle direction parafoveally. The latter technique is found to be somewhat faster with both pilots accomplishing the flying task.

N80-14698# Decisions and Designs, Inc., McLean, Va. VALIDATION AND ERROR IN MULTIPLICATIVE UTILITY FUNCTIONS Research Report, Oct. 1977 - Dec. 1978

F. Hutton Barron Dec. 1978 52 p refs Prepared in cooperation with Univ. of Southern California

(Contract N00014-76-C-0074)

(AD-A073362; USC-001922-2-T; SSRI-RR-78-2) Avail: NTIS HC A04/MF A01 CSCL 05/10

In this report an approach to the concept of error in utility assessment is proposed. Three components of error are considered and each component is related to four separate elicitation methods-all in the context of a general multiplicative multiattribute utility model. The methods are Keeney-Raiffa (1976) procedure, SMART (Edwards, 1977), a social judgment theory (SJT) based regression model (Hammond, Stewart, Brehmer and Steinmann, 1975) and a new method called Holistic Orthogonal Parameter Estimation or HOPE (Barron and Person, 1978). If a general multiplicative model can be assumed to be an appropriate representation of the decision maker's basic preference structure, error can occur in the direct estimation of the scaling constants and univariate utility functions for decomposition methods (Keeney-Raiffa and SMART), or in the holistic assessments for holistic methods (SJT and HOPE). Individual estimates may be merely noisy or may be fundamentally incorrect. Furthermore, the utility model may be incorrectly specified; for example, an additive model, rather than a multiplicative model, may be used. The four assessment methods are considered in Author (GRA) conjunction with errors of each kind.

N80-14699# University of Southern California, Los Angeles. Social Science Research Inst.

A CRITERION VALIDATION OF MULTIATTRIBUTE UTILITY ANALYSIS AND OF A GROUP COMMUNICATION STRAT-EGY Research Report, Oct. 1977 - Dec. 1978

Lee C. Eils, III and Richard S. John Dec. 1978 53 p refs Prepared for Decisions and Designs, Inc., McLean, Va. (Contract N00014-76-C-0074)

(AD-A073364; USC-001922-4-T; SSRI-RR-78-4) Avail: NTIS HC A04/MF A01 CSCL 05/10

This study investigates the use of an external criterion for validating additive utility assessments under certainty. Utilities were elicited from twenty-four groups via consensus judgment for ten hypothetical applicants for bank credit cards. The research design completely crossed two factors relevant to group utility assessment: (1) using a decomposition (MAUA) procedure or not, and (2) using a formal group communication strategy or not. The quality of each group's utility judgments was defined to be the Pearson produce-moment correlation between the group's judged utilities and utilities output from a configural (nonlinear) model used by Security Pacific National Bank in evaluating applicants for Master Charge. Group satisfaction measures were also obtained. The decomposition methodology and the group communication strategy both aided groups in making assessments that are more consistent with those of the bank model, which is based on a systematic collection and interpretation of a large amount of relevant data. Simplified procedures for obtaining weight parameters in the multi-attribute utility analysis yielded better overall utilities than more complicated ratio-estimation techniques.

N80-14700# Decisions and Designs, Inc., McLean, Va. IMPORTANCE WEIGHT ASSESSMENT FOR ADDITIVE, RISKLESS PREFERENCE FUNCTIONS: A REVIEW Research Report, Oct. 1977 - Dec. 1978

Richard S. John and Ward Edwards Dec. 1978 72 p refs Prepared in cooperation with Univ. of Southern California (Contract N00014-76-C-0074)

(AD-A073365; USC-001922-5-T; SSRI-RR-78-5) Avail: NTIS HC A04/MF A01 CSCL 05/10

One of the more useful tools in decision analysis is the riskless, additive multiattribute utility (MAU) model. The most difficult task in the application of MAU models is that of estimating the importance weight parameters. Two general approaches to the weight estimation problem are extensively reviewed in the present paper: direct subjective estimation and indirect holistic estimation. Various methods for directly assessing importance weights are catalogued, including ranking, fractionation, subjectiveestimate methods, and paired-comparison procedures, and their relationship to one another is discussed. The so-called indirect holistic methods, including unbiased and biased regression analyses, the ANOVA and fractional ANOVA paradigms, and the indifference techniques of pricing out and trading off to the most important dimension, are all explained with particular emphasis on their common relationship to the general linear model. Author (GRA)

N80-14701# Decisions and Designs, Inc., McLean, Va. ARE IMPORTANT WEIGHTS SENSITIVE TO THE RANGE OF ALTERNATIVES IN MULTIATTRIBUTE UTILITY MEASUREMENT Research Report, Oct. 1977 - Dec. 1978

William F. Gabrielli, Jr. and Detlof VonWinterfeldt Dec. 1978 47 p refs Prepared in cooperation with Univ. of Southern California

(Contract N00014-76-C-0074)

(AD-A073366; USC-001922-6-T; SSRI-RR-78-6) Avail: NTIS HC A03/MF A01 CSCL 05/10

Scaling factors in multiattribute utility measurement can either be assessed directly as importance weights or indirectly by indifference judgments. Critics of the importance weight interpretation of scaling factors argue that importance weights are not sensitive to ranges of alternatives and thus cannot be used to match standardized single attribute utility functions. To examine the range sensitivity of importance weight judgments two experiments were designed. In the first experiment college students gave relative importance weight judgments for a number of attributes when evaluating apartments and liquified natural gas plant locations. After the initial importance weight assessments

the range of alternatives in one attribute was changed and subjects reassessed their weights. Although subjects were explicitly instructed to take ranges into account when making these judgments, they were unable to adjust their weights appropriately. To magnify possible range effects a second experiment examined a very simple two attribute car evaluation problem. Subjects were asked directly if weights should change after the range in one attribute was doubled. Most subjects indicated that there should be no change. The results of these experiments suggest that subjects have plausible ranges in mind when assessing importance weights and that they are unwilling to change weights after relatively spurious changes in the alternative set.

Author (GRA)

N80-14702# Decisions and Designs, Inc., McLean, Va.
SUBJECTIVE VERSUS STATISTICAL IMPORTANCE
WEIGHTS. A CRITERION VALIDATION Research Report,
Oct. 1977 - Dec. 1978

Richard S. John and Ward Edwards Dec. 1978 52 p refs Prepared jointly with Univ. of Southern Calif., Los Angeles (Contract NO0014-76-C-0074)

(AD-A073367; SSRI-RR-78-7; USC-001922-7-T) Avail: NTIS HC A04/MF A01 CSCL 05/10

The present paper proposes a research paradigm for comparing weight estimates to empirically derived 'true' weights, thus obtaining a measure of the criterion validity of different weight estimation techniques. Subjects are first taught a multi-attribute utility (MAU) model via multiple-cue probability learning (MCPL) and outcome feedback. Then, various assessments of the importance weight parameters for the model attributes are obtained. Composites formed from these weights are subsequently compared to composites formed from optimal statistical weights derived from outcome feedback. Data are reported from 17 subjects who were taught one of three 'diamond worth' MAU models in 100 feedback trials. The models all involved four attributes (cut, color, clarity, and carat weight), and varied in the 'environmental correlations' among the dimensions (either (1) all uncorrelated, (2) one large positive correlation, or (3) two large negative correlations). The results of the present study are discussed from both an applied and theoretical perspective. To the decision analyst in the field, the present results give support to the belief that the parameter estimates obtained from clients define a 'true' normative preference function. Theoretically, the findings of this study are strong evidence that people are aware of their own cognitive processes.

N80-14703# Aerospace Medical Research Labs., Wright-Patterson AFB Ohio

EFFECT OF PERIPHERALLY PRESENTED VISUAL SIGNALS ON PILOT PERFORMANCE DURING FLIGHT SIMULATION Final Technical Report, Oct. 1977 - Sep. 1978

John M. Bermudez, Jock C. H. Schwank, Thomas M. Longridge, Thomas M. McCloy, and Bruce A. Smith Jun. 1979 21 p refs

(AF Proj. 7184)

(AD-A073604; AMRL-TR-78-120) Avail: NTIS HC A02/MF A01 CSCL 05/5

Recent theoretical developments have stimulated interest in the development and testing of peripheral vision displays which could be used to monitor the control of aircraft attitude. This study investigated the ability of pilots to attend to peripherally presented attitude information via LED displays while simultaneously engaging in foveal processing of an instrument array during a complex maneuver in flight simulator. Twenty-four pilots were divided into two groups of twelve. One group performed vertical S maneuvers using an LED display that indicated an out-oftolerance condition in compass heading (steady LED). The second group used an LED that provided both out-of-tolerance information and rate-of-error information (strobe LED). All pilots were pre-trained to criterion. Both groups performed under each of three display conditions: Normal (standard round compass dial), Redundant (dial and LED), and Peripheral (LEDs-only). There were no statistically significant differences between the steady LED display and the strobing LED display. Overall, the results suggest that peripheral displays are at least as effective as compass dials for monitoring purposes, and such displays might prove useful as adjunct training aids with the potential for improving safety.

Author (GRA)

N80-14704# Army Military Personnel Center, Alexandria, Va. A STUDY IN PROCEDURAL MANIPULATION OF LOCUS OF CONTROL M.S. Thesis - North Carolina Central Univ. Final Report

Vernon Webster Hatley 13 Apr. 1979 72 p refs (AD-A068658) Avail: NTIS HC A04/MF A01 CSCL 05/10

Specific locus of control change techniques were developed, examined and tested on one hundred twenty-eight (128) matched students in a general psychology class at North Carolina Central University during the spring semester of 1979. This study investigated the possibility of changing locus of control orientation in college students. Additionally, pretest locus of control scores of students who dropped the course were compared with those completing it. The experimental design was a two by four (2 x 4) matched group design. Presumed change in pretest-posttest locus of control scores as measured by Rotter's Internal External Locus of Control Scale and pretest locus of control scores of students who dropped the course were the dependent variables. Results revealed that locus of control scores in the experimental group shifted significantly (p less than .05) in the internal direction while those in the control condition moved toward an external orientation. Externals in the experimental group contributed significantly (p less than 0.5) to the overall change. Internals were found to move toward externality. The findings confirmed the contention that locus of control orientation can be influenced toward internality. Recommendations are offered for use of locus of control intervention techniques in academic settings.

Author (GRA)

N80-14705# Johns Hopkins Univ., Baltimore, Md. Div. of Behavioral Biology.

EXTENDED ANALYSIS OF SMALL GROUP PERFORMANCE AND THE EFFECTS OF CONTINGENCY MANAGEMENT IN A PROGRAMMED ENVIRONMENT

H. H. Emurian and J. V. Brady 16 Apr. 1979 30 p refs (Contract N00014-77-C-0498; NR Proj. 170-855) (AD-A068665; TR-4) Avail: NTIS HC A03/MF A01 CSCI 05/10

Volunteer subjects have participated in a series of experimental group missions involving continuous residence for varying periods in the programmed environment. The methodology involved in these ongoing studies extends the applications of performance programming technologies detailed in prior publications. The experiments focus upon an explicit analysis of the conditions under which interrelationships between participants and experimenters influence performance effectiveness. To assess potential interrelationships between physiological status and performance effectiveness and productivity, four measures were obtained while subjects concurrently operated the performance battery: (1) heart rate, (2) frontalis EMG, (3) skin temperature, and (4) skin conductance. Urine free cortisol levels were also determined from analyses of total urine volume which was collected throughout the mission. A strong overall relationship was observed between individual productivity and mean daily urine free cortisol. These observations together suggest that the stress of sustained high productivity along with prolonged performance accuracy on a demanding task may render an individual vulnerable to disruptive emotional reactions such as those provoked by the avoidance phase of the study. Author (GRA)

N80-14706# Maryland Univ., College Park. Dept. of Psychology.

ABILITY, INVOLVEMENT AND CLIMATE AS MULTIPLE AND INTERACTIVE PREDICTORS OF PERFORMANCE

R. Gene Hoffman Apr. 1979 41 p refs

(Contract N00014-75-C-0884; RR0420402)

(AD-A068891; RR-21) Avail: NTIS HC A03/MF A01 CSCL 05/10

Student ability, involvement in the class, and classroom climate created by the instructor activities were examined as multiple and interactive predictors of course performance for 915 students in 74 sections of a mathematics course. Climate

was defined in two ways: (1) as individual perceptions and (2) as shared perceptions. Two parallel analyses were conducted using the two definitions of climate. Each analysis resulted in ability, involvement and climate contributing unique variance in the prediction of student examination performance on a common exam. Climate dimensions contributing to performance were coordination of class activities, instructor skill, and the extent of critical demands (a negative relationship). The most significant difference between the two analyses was the appearance of a significant ability X coordination interaction in the analysis using shared climate perceptions. This difference was interpreted to be the result of a confounding of the interaction in the individual perceptions of coordination. The relationship between the interaction and predictive accuracy was explored.

N80-14707# Maryland Univ., College Park. Dept. of Physics. WORK PERFORMANCE AS A FUNCTION OF THE INTERAC-TION OF ABILITY, WORK VALUES, AND THE PERCEIVED WORK ENVIRONMENT

Robert Lee Hannon Apr. 1979 165 p refs (Contract N00014-75-C-0884; RR0420402) (AD-A068893; RR-22) Avail: NTIS HC A08/MF A01 CSCL 05/10

Literature pertaining to the prediction of performance from ability, motivation and their interaction was reviewed. Three personal traits (achievement motivation, locus of control, and bureaucratic values) are examined as possible antecedents of work motivation and performance. A model of work motivation that depends on the strength of the personal traits interacting with their environmental compatibility was developed. An empirical study on 417 police officers was conducted to test hypotheses generated from the models. Measures of the personal traits were developed and administered along with a guestionnaire used to ascertain perceptions of the work environment. Supervisor's ratings of performance were collected as well as demographic and ability measures. Moderated multiple regression analyses found strong evidence for the performance-related validity of the work motivation model. Neither ability nor the ability-motivation interaction showed any relationship to performance. GRA

N80-14708# Maryland Univ., College Park. Dept. of Psychology.

METHODOLOGICAL AND CONCEPTUAL ISSUES IN ABILITY-PERFORMANCE UNDERSTANDING **LATIONSHIPS** Final Report

Benjamin Schneider Apr. 1979 36 p refs (Contract N00014-75-C-0884; RR0420402)

(AD-A068894; RR-25) Avail: NTIS HC A03/MF A01 CSCL 05/10

This final report presents summaries of a series of technical reports concerned with individual non-ability and contextual variables as contributions to ability-performance relationships and the prediction of work performance. Theoretical papers and laboratory and field research efforts are summarized. It was concluded that situational variables conceptualized and operationalized in a number of different ways contribute additively, but not interactively, to the prediction of performance. Also included in this report is a list of publications accomplished under this contract. GRA

N80-14709# Arizona State Univ., Tempe. Dept. of Educational Technology

RULE LEARNING AND SYSTEMATIC INSTRUCTION IN PILOT TRAINING Final Report, 1 Oct. 1977 - 31 Dec.

Vernon S. Gerlach Mar. 1979 30 p (Grant AF-AFOSR-2900-76; AF Proj. 2313)

(AD-A068906; TD-3; AFOSR-79-0609TR) Avail: NTIS

HC A03/MF A01 CSCL 05/9

Four related lines of endeavor were pursued. Central to these activities was the research on algorithmized instruction as a form of rule learning and its effect on the acquisition of complex human behaviors. This theme was implemented in studies on the role of performance objectives in instructional systems design, on the role of self-evaluation and its relationship to performance measurement, on the use of computer models in defining algorithms involving rule-using behavior, and an observation regarding the use of the Pearson product-moment correlation in performance measurement.

N80-14710# Maryland Univ., College Park. Dept. of Psychol-

RATING ERRORS OF INCONSISTENCY AS A FUNCTION OF DIMENSIONALITY OF BEHAVIORAL ANCHORS

Bruce L. Katcher and C. J. Bartlett May 1979 25 p. (Contract N00014-75-C-0884; RR0420402)

(AD-A068922; RR-24) Avail: NTIS HC A02/MF A01

The present study focuses upon rating errors of inconsistency in multidimensional behavior-specific rating scales used for purposes of performance appraisal. The hypothesis that rating scales which are more nearly unidimensional will result in a fewer rating errors of inconsistency was tested using a Mixed Standard Rating Scale developed for police supervisory personnel. Two measures of unidimensionality were used. The correlations between the indices of unidimensionality and rating inconsistency across ten rating dimensions were significant and in the predicted direction, confirming the hypothesis. The implications of the results for behaviorally anchored rating scales are discussed.

N80-14711# Computer Sciences Corp., Huntsville, Ala. A MIND/BRAIN/MATTER MODEL CONSISTENT WITH QUANTUM PHYSICS AND UFO PHENOMENA

T. E. Bearden 1979 41 p

(AD-A068988) Avail: NTIS HC A03/MF A01 CSCL 05/10 The author introduces a speculative model of mind and matter and their interaction that is consistent with the experimental basis of physics, and which offers mechanisms for paranormal phenomena of all types, including UFO phenomena. Certain conclusions are reached by a new fourth law of logic, which is briefly described and summarized. A new photon interaction model of quantized observable change is also presented. A solution to the problem of the nature of mind is generated, using the author's fourth law of logic, and a seven-dimensional hyperspatial physical model of a living biosystem is developed. Using this basic model, an infinite-dimensional cotemporal hyperspatial model of the physical universe complete with all its life forms is constructed. Levels of unconsciousness-including the collective human species unconscious--emerge naturally as types of crosstalk between hyperframes. By the author's formula, the psychokinetic power of a mind level increases exponentially as the number of biosystem stages involved. At the level of the collective human species unconscious, the psychokinesis is sufficient to materialize symbolic tulpoids (thought forms), given a sufficient stress stimulus in large groups. Using the cold war as the major stress stimulus on mankind since World War II, the author shows that most major UFO waves in the literature precisely fit the model. GRA

N80-14712# Ohio State Univ. Research Foundation, Columbus. PROCESS MODEL OF HOW THE HUMAN OPERATOR TRACKS DISCONTINUOUS INPUTS Final Report, 1 Jul. 1977 - 30 Sep. 1978

Richard J. Jagacinski, Walter W. Johnson, E. James Hartzell, Sharon Ward, and Kaile Bishop Dec. 1978 32 p refs (Grant AF-AFOSR-3288-77; AF Proj. 2312)

(AD-A069001; OSURF-760640/784688; AFOSR-79-0607TR) Avail: NTIS HC A03/MF A01 CSCL 05/10

Two basic research projects were pursued. In conjunction with personnel at the 6570th Aerospace Medical Research Laboratory, Human Operator Effectiveness Branch, experiments determined that the time to acquire stationary targets with position and velocity control systems was a linear function of an Index of Difficulty measure. This measure is a logarithmic function of initial target displacement and target width. The linear relationship with capture time represents an extension of Fitts' Law, known to hold for discrete movements performed with a physical stylus. The slope of the linear relationship between capture time and the Index of Difficulty was considerably steeper for the velocity control system and was slightly steeper for greater initial target uncertainty. The second project investigated the capture of moving targets with three different control systems: (1) two independent position controls, PP; (2) two independent velocity controls, VV;

and (3) one position and one velocity control, PV. The PV system yielded significantly faster capture times than the PP system. However, due to the development of two different control strategies with the VV system the difference between the VV and the other systems was not statistically significant. Further research is recommended to clarify this latter result.

N80-14713# Rochester Univ., N. Y. Center for Visual Science.

A FACILITATION EFFECT IN ORIENTATION DISCRIMINA-

John Lott Brown and Iris M. Kortela 1976 29 p refs (Contracts N00014-76-C-0189; NEI-ROI-EY-00680) (AD-A072726; TR-76-2) Avail: NTIS HC A03/MF A01 CSCL 06/16

The minimal stimulus for orientation discrimination consists of two spots of light which define the orientation of an imaginary line. Luminance thresholds for discrimination of orientation were measured with two 5 min test spots, separated by 10, 20, 30 or 40 min of arc, located approximately 2 deg from the fovea. Test flashes were of 2 msec duration and varied in temporal relation from simultaneity to nearly 0.5 sec asynchrony. When measurements were made by an ascending method of limits with both test flashes increasing together, luminance thresholds for orientation discrimination were close to light detection thresholds and were uninfluenced by the temporal relation. When one of the flashes was presented by a constant luminance 0.6 log unit above detection threshold and the luminance of the other was the dependent variable, the luminance threshold for discrimination of orientation of the two spots varied with their temporal and spatial relations. For 30 min separation it was approximately 0.4 log unit below light detection threshold when the variable luminance spot preceded the fixed luminance spot by about 140 msecs for each of two observers. Results with haploscopic presentation suggest that the effect may represent facilitation at the cortex.

N80-14714 Dutch Air Line Pilots Association, Amstelveen. SLEEP AND BODY RHYTHM DISTURBANCE IN LONG-RANGE AVIATION. THE PROBLEM AND A SEARCH FOR RELIEF

Frank H. Hawkins Sep. 1978 98 p refs Copyright. Avail: Issuing Activity

The effect of sleep disturbance and deprivation and body rhythm disruption in long-range aviation and on the performance of flight crews was investigated. The theory of sleep and body rhythms is presented and discussed. Human performance and sleep is also discussed. Current relief efforts are described along with possible alternative ways for relief. Some of the alternatives are autogenic training, progressive relaxation, auto-hypnosis, yoga, meditation, and biofeedback. The study concludes that for safety, social, and economic reasons, it would be advisable to research more fully the sleep problem in aviation.

N80-14715*# National Aeronautics and Space Administration, Washington, D. C.

TECHNOLOGIES FOR THE HANDICAPPED AND THE

Trudy E. Bell Jul. 1979 48 p

(NASA-TM-80842) Avail: NTIS HC A03/MF A01 CSCL 05H

Examples of the technology transferred from advanced aerospace research projects to the needs of the handicapped and the elderly are presented. The booket is divided into six sections, concentrating on technology respectively applied to the heart, limbs, senses, diagnostic tools, treatment and overall lifestyle. Within each section, the projects are organized roughly in chronological order, from those already completed and in the marketplace to those on the engineer's drawing board or still a concept in a physician's mind.

N80-14716* National Aeronautics and Space Administration, Washington, D. C.

SIMULATION OF PHYSIOLOGICAL SYSTEMS IN ORDER TO EVALUATE AND PREDICT THE HUMAN CONDITION IN A SPACE FLIGHT

V. V. Verigo Dec. 1979 26 p refs Transl. into ENGLISH of conf. paper from Inst. of Med. and Biol. Problems, Min. of Health USSR Moscow, 1979 p 1-23 Presented at the 10th Conf. of the Joint Soviet-Am. Working Group on Space Biol. and Med., Houston, Tex., Oct. 1979 (Contract NASw-3198)

(NASA-TM-76016) Avail: NTIS HC A03/MF A01 CSCL 06S

Simulation models were used to study theoretical problems of space biology and medicine. The reaction and adaptation of the main physiological systems to the complex effects of space flight were investigated. Mathematical models were discussed in terms of their significance in the selection of the structure and design of biological life support systems.

N80-14717*# National Aeronautics and Space Administration, Washington, D. C.

BIOLOGICAL SYSTEMS FOR HUMAN LIFE SUPPORT: REVIEW OF THE RESEARCH IN THE USSR

Ye. Ya. Shepelev Dec. 1979 26 p refs Transl. into ENGLISH from Obzor. Issled. v SSSR, Inst. of Med. and Biol. Problems, Ministry of Health (Moscow), 1979 p 1-24 Presented at the 19th Conf. of the Joint Soviet-Am. Working Group on Space Biol. and Med., Houston, Tex., Oct. 1979 Transl. by Scientific Translation Service, Santa Barbara, Calif.

(Contract NASw-3198)

(NASA-TM-76018) Avail: NTIS HC A03/MF A01 CSCL 06K

Various models of biological human life support systems are surveyed. Biological structures, dimensions, and functional parameters of man-chlorella-microorganism models are described. Significant observations and the results obtained from these models are reported.

N80-14718*# Life Systems, Inc., Cleveland, Ohio. REGENERATIVE CO2 REMOVAL FOR PLSS APPLICATION Final Report

D. B. Heppner, R. R. Woods, and F. H. Schubert Oct. 1979 64 p refs

(Contract NAS9-15218)

(NASA-CR-160419; LSI-TR-319-31-6) Avail: NTIS

HC A04/MF A01 CSCL 06K

Various concepts for the design of the nonelectrochemical absorber were defined and evaluated. A preliminary design based on the use of hollow fiber membranes was developed. Small scale bench testing demonstrated the carbon dioxide removal capability and provided design data for scale-up to the one person level. A full scale conceptual design of the absorbent regeneration hardware using six electrochemical cells was also completed. The design was supported by single cell testing and showed that a full scale regeneration system, operating continuously over 24 hours, can regenerate the absorbent from one extravehicular activity mission. The single cell regeneration hardware was operated for over 800 hours.

N80-14719# Systems Technology, Inc., Hawthorne, Calif. MODELING BIODYNAMIC EFFECTS OF VIBRATION, FIFTH YEAR Final Scientific Report

Henry R. Jex and Raymond E. Magdaleno Aug. 1979 73 p

(Contract F44620-73-C-0075; AF Proj. 2312)

(AD-A073819; STI-1037-5; AFOSR-79-0960TR) Avail: NTIS HC A04/MF A01 CSCL 05/5

The biomechanical feedthrough of vertical and/or fore-aft vibration from a seat, to (and through) various parts of the torso, limbs, hands, and head, to a spring-restrained control stick has been modeled over a 5-year effort using prior Air Force and other data bases. This final report summarizes the project results and provides a User's Guide to BIODYN-78, an interactive, remote-access, digital computer program for exercising the model. The model involves 77 postural and physiological parameters to define a broad range of seating/control/display arrangements from supine to erect. An internal routine automatically trims the Torso/Head/Limb system at the desired angles and computes linearized equations of motion, which are solved for their

eigenvalues and resulting transfer functions using highly refined computing routines. In distinction from most past models, this model represents several degrees-of-freedom simultaneously, e.g., vertical and fore/aft shoulder motion, angular head-bobbing, constrained elbow motion, stick-grip-interface force, muscle forces, and stick angular motion, among many others.

N80-14720# Advanced Research Resources Organization, Washington, D.C.

METHODS FOR EVALUATING THE PHYSICAL AND EFFORT REQUIREMENTS OF NAVY TASKS: METABOLIC, PERFOR-MANCE, AND PHYSICAL ABILITY CORRELATES OF PERCEIVED EFFORT Technical Report, 1 May 1978 - 30 Apr. 1979

Joyce C. Hogan, George D. Ogden, Deborah L. Gebhardt, and Edwin A. Fleishman Apr. 1979 73 p refs

(Contract N00014-78-C-0430)

(AD-A072497: ARRO-3034-R79-3) Avail. NTIS

HC A04/MF A01 CSCL 06/16

Two studies examined the reliability and validity of an index of perceived physical effort for assessing the metabolic and ergonomic costs of task performance. In each study, tasks whose actual performance costs were either available from work physiology literature or were calculated mathematically were rated by subjects who had no work cost information on physical effort required in the task. In the first study, subjects (N=50) completed pencil and paper ratings of tasks whose metabolic costs were known using physical ability dimensions and the index of perceived physical effort. Results indicated high correlations between metabolic costs and ratings of physical effort as well as ratings of various strength and stamina factors. In the second study, subjects (N=20) performed 24 diverse manual materials handling tasks whose ergonomic costs were calculated and rated each completed task on the index of physical effort. Results indicated a substantial relationship between actual ft-lbs. of work and ratings of physical effort. Implications of the results are discussed in terms of the inherent psychometric properties of the index and its applied utility for determining criterion performance standards and job-related training.

N80-14721# Anthropology Research Project, Yellow Springs, Ohio.

DESIGN CRITERIA FOR CHARACTERIZING INDIVIDUALS IN THE EXTREME UPPER AND LOWER BODY SIZE RANGES

Kathleen Robinette and Thomas Churchill Wright-Patterson AFB, Ohio AMRL Jun. 1979 92 p refs

(Contract F33615-78-C-0508; AF Proj. 7184)

AMRL-TR-79-33) (AD-A072353:

HC A05/MF A01 CSCL 06/14

Designers commonly attempt to represent a range of human body sizes by using human manikins, three-dimensional forms, computer simulations, and various other models. These analogues are developed from a limited number of body size groupings, often utilizing 5th, 50th, or 95th percentile values. There are serious limitations to this percentile approach, exemplified by the fact that at the ends of the distribution, percentile values are not additive. Focusing on the ends of the distribution, where limitations are most intense, this report pinpoints and illustrates problems associated with the use of percentile values, and describes two alternative approaches: subgroup and regression values. Either of these altneratives offers significant improvement over the percentile approach and can be used to characterize any portion of the body size distribution. Regression equations for predicting dimensions from weight and stature and from weight and sitting height are provided to aid designers in computing dimensional body size data needed for cockpit and other work station layouts.

N80-14722# Aerospace Medical Research Labs., Wright-Patterson AFB, Ohio.

TIME SIMULATION OF AN AIR SURVEILLANCE TASK WITH **VARYING AMOUNTS OF RADAR INFORMATION**

William H. Pearson Jun. 1972 28 p refs

(AD-A074866 AMRL-TR-72-74) Avail: NTIS

HC A03/MF A01 CSCL 17/7

Subjects observed a computer display unit simulating radar noise and radar trails of 150 and 500 mph aircraft, one per minute on the average, over a 1000 mile square area. Radar information was stored, cycle by cycle, up to a limit of 3,5,7 and 9 twenty second cycles and then presented sequentially rapidly enough to give an illusion of movement in the trails. Subjects detected the presence of aircraft and controlled computer processing by lightpen and keyboard actions. Time-to-detect increased with radar information for 500 mph tracks but not for 150 mph tracks. Probability of detection increased with radar information for 150 mph trails but not for 500 mph trails. These results were interpreted as showing the disruptive effect of (1) simulated radar noise confounded with the amount of radar information because of information storing and (2) the interference of the easier-to-find 500 mph aircraft with the 150 mph aircraft. GRA

N80-14723# Michigan Univ., Ann Arbor. Highway Safety Research Inst

MOTOR VEHICLE MANUFACTURERS ASSOCIATION (MVMA) TWO-DIMENSIONAL CRASH VICTIM SIMULA-TION TUTORIAL SYSTEM: SELF-STUDY GUIDE Final Report

Bruce M. Bowman, D. Hurley Robbins, and Robert O. Bennett 28 Jun. 1979 423 p. Sponsored in part by Motor Vehicle Manufacturers Assoc.

UMICH-HSRI-79-7-1) (PB-299256/8; HC A18/MF A01 CSCL 13F

A mathematical model used for predicting occupant dynamics in a crash environment is described. A self study guide divided into thirteen segments is presented. The data requirements of a set of related model features are included in each segment. Text, illustrations, and example problems are given. RCT

N80-14724# Michigan Univ., Ann Arbor. Highway Safety Research Inst.

MOTOR VEHICLE MANUFACTURERS ASSOCIATION (MVMA) TWO-DIMENSIONAL CRASH VICTIM SIMULA-TION TUTORIAL SYSTEM: AUDIO-VISUAL PROGRAM Final Report

Bruce M. Bowman, D. Hurley Robbins, and Robert O. Bennett 28 Jun. 1979 303 p Prepared jointly with Motor Vehicle Manuf. Assoc. of the US

UMICH-HSRI-79-7-2) (PB-299257/6: HC A14/MF A01 CSCL 13F

A mathematical model used for predicting occupant dynamics in a crash environment is described. An audio visual program divided into thirteen segments is presented. The data requirements of a set of related model features are included in each segment. The narration text and figures used for the 35 mm slides is

N80-14725# Michigan Univ., Ann Arbor. Highway Safety Research Inst.

MVMA TWO-DIMENSIONAL CRASH VICTIM SIMULATION, VERSION 4, VOLUME 1 Final Report

Bruce M. Bowman, Robert O. Bennett, and D. Hurley Robbins 29 Jun. 1979 233 p refs Prepared jointly with Motor Vehicle Manuf. Assoc. of the US

(PB-299305/3; UMICH-HSRI-79-5-1-Vol-1) Avail: NTIS HC A11/MF A01: Also available in set of 3 reports HC E13. PB-299304-SET CSCL 13P

The coordinate systems describing occupant position are defined and the formulation of the equations of motion using Lagrangian techniques is detailed. The addition of forces to the equations of motion is described in general, supplemented by specific analyses for vehicle-occupant contact, gravity, joints, and restraint systems.

N80-14726# Michigan Univ., Ann Arbor. Highway Safety Research Inst.

MVMA TWO-DIMENSIONAL CRASH VICTIM SIMULATION, VERSION 4, VOLUME 2 Final Report

Bruce M. Bowman, Robert O. Bennett, and D. Hurley Robbins 29 Jun. 1979 294 p refs Prepared jointly with Motor Vehicle Manuf. Assoc. of the US

NTIS

(PB-299306/1: UMICH-HSRI-79-5-2-Vol-2) Avail: NTIS HC A13/MF A01; Also available in set of 3 reports HC E13, PB-299304-SET CSCL 13F

The data required to operate the MVMA two dimensional model and program output generated using simple data sets are described. Specifications for the input data cards together with a detailed description of input data quantities are presented. Normal output options and certain normal output quantities are described. Input and output is given for two sample exercises of the computer model.

N80-14727# Michigan Univ., Ann Arbor. Highway Safety Research Inst.

MVMA TWO-DIMENSIONAL CRASH VICTIM SIMULATION, VERSION 4, VOLUME 3 Final Report

Bruce M. Bowman, Robert O. Bennett, D. Hurley Robbins, and Judith M. Becker 29 Jun. 1979 338 p refs Prepared jointly with Motor Vehicle Manuf. Assoc. of the US

(PB-299307/9; UMICH-HSRI-79-5-3-Vol-3) Avail: NTIS HC A15/MF A01; Also available in set of 3 reports HC E13, PB-299304-SET CSCL 13F

The organization of the computer program into live processors and their interactions is presented. Description of program organization and flow, packing techniques, binary output formats, and auxiliary program output is presented for each of the five processors. Design information concerning certain special output subprocessors is provided. Conversion of the computer program for use of various computer systems is discussed.

N80-14728# Advisory Group for Aerospace Research and Development, Paris (France).

MAINTENANCE OF AIR OPERATIONS WHILE UNDER ATTACK WITH CHEMICAL AGENTS

J. Ernsting, ed. (RAF Inst. of Aviation Med., Farnborough, U.K.)
Sep. 1979 51 p Presented at the Aerospace Med. Panel's
Specialists' Meeting, Brussels, 22-26 Jan. 1979

(ÅGARD-CP-264-Suppl; ISBN-92-835-0251-5) Avail: NTIS HC A04/MF A01

The capability of NATO Forces to maintain air operations while under attack with chemical agents depends on effective personal and collective protection for the aircrew and ground personnel while allowing them to perform adequately their operational duties. Topics cover the effects and detection of chemical warfare agents as well as protection against them.

N80-14729# Aberdeen Proving Ground, Md. Biomedical Lab. THE EFFECTS OF ACUTE AND CHRONIC LOW DOSE EXPOSURE TO ANTICHOLINESTERASES

F. C. Cadigan and M. Chipman In AGARD Maintenance of Air Operations While Under Attack with Chem. Agents Sep. 1979 3 p refs

Avail: NTIS HC A04/MF A01

Acute sublethal and chronic subclinical exposures to toxic anticholinesterases may result in long term neurobehavioral deficits. The deficits most likely to occur include: slowed reaction times, erratic mood swings, sleep disturbances, and impaired visual memory. Individuals who operate high performance equipment and are acutely exposed should be kept off the job until examinations of brain function are normal.

N80-14730# School of Aerospace Medicine, Brooks AFB, Tex. CONSIDERATION OF PYRIDOSTIGMINE AS A PROPHYLACTIC AGENT FOR AIRCREW

B. Richardson In AGARD Maintenance of Air Operations While Under Attack with Chem. Agents Sep. 1979 2 p refs

Avail: NTIS HC A04/MF A01

The carbamate pyridostigmine shows considerable promise as a first-generation prophylatic for nerve agent poisoning. Although it is unlikely to yield all the benefits desirable, the potential utility of pyridostigmine in conjunction with appropriate therapy warrants detailed study.

N80-14731# Norwegian Defence Research Establishment, Kjeller. Toxicology Div.

THE EFFECT OF LOCALLY APPLIED ORGANOPHOSPHATES ON MIOSIS AND ACETYLCHOLINESTERASE ADAPTATION TO CHRONIC TREATMENT

Didrik Malthe-Sorenssen, Nils E. Soli, and Frode Fonnum In AGARD Maintenance of Air Operations While Under Attack with Chem. Agents Sep. 1979 5 p. refs

Avail: NTIS HC A04/MF A01

Topical administration of organophosphates to the eye of guinea pigs inhibited acetylcholinesterase of different parts of the eye to a different degree. The differences reflected most likely dilution of the agent caused by diffusion into the eye. The effect of locally applied organophosphates was ascribed to an effect on the iris and ciliary muscle and not on the retina. The degree of miosis and recovery of pupillary function after soman treatment correlated better to inhibition of external acetylcholinesterases than total acetylcholinesterase. Chronic treatment with soman reduced the miotic potency of soman and reduced the recovery time of the miosis. This adaptation was dependent on other factors than cholinergic. Local treatment of miosis with topical application of oximes to the eye reduced the miosis and reactivated acetylcholinesterase in the cornea and iris. The reactivation was enhanced in the presence of benzalkonium.

Author

N80-14732# Federal Armed Forces Medical Coll., Munich (West Germany). Dept. of Toxicology and Pharmacology.

THERAPY ON NERVE AGENT POISONING

Nikolaus P. Weger In AGARD Maintenance of Air Operations While Under Attack with Chem. Agents Sep. 1979 4 p refs

Avail: NTIS HC A04/MF A01

The therapeutic properties of various combinations of the bispyridinium salts HS-3 and HS-6 and the cholinolytics atropine and benactyzine against soman poisoning were investigated in unanesthetized male beagles. Present data demonstrate that from all antidotes tested HGG-12-Cl and HGG-42-J in doses effective for treatment of men show good therapeutic effects in beagles poisoned with soman, sarin, and Vx. Best effect has HGG-42-J in a dose of 30 micron Mol/kg(= 18.27 mg/kg). In soman poisoning no reactivation of serum cholinesterase and cholinesterase in erythrocytes was observed. Other mechanisms of therapeutic activity must be explored.

N80-14733# Air Force Systems Command, Wright-Patterson AFB, Ohio. Life Support System Program Office.

APPROACHES TO CW AGENT AREA DETECTION SYSTEMS FOR AIRFIELDS

Francis T. Crimmins and John J. McCambridge In AGARD Maintenance of Air Operations While Under Attack with Chem. Agents Sep. 1979 10 p

Avail: NTIS HC A04/MF A01

United States Air Force (USAF) efforts to develop a chemical agent area detection system for the protection of air bases are examined. Point detection techniques which might provide a limited and interim area detection capability are discussed and the A/E23D-3 Chemical Agent Automatic Alarm and its characteristics are described. The USAF requirement for an instrument which will detect toxic chemical agents before they reach the intended target along with the capabilities such a detector must possess are presented. The Air Force's present views on how such a system might operate are explored. A.R.H.

N80-14734# Air Force Systems Command, Wright-Patterson AFB, Ohio. Life Support System Program Office.

PHILOSOPHY OF PROTECTION OF US AIRCREWS AGAINST CHEMICAL WARFARE AGENTS

John J. McCambridge and D. E. Root *In* AGARD Maintenance of Air Operations While Under Attack with Chem. Agents Sep. 1979 2 p

Avail: NTIS HC A04/MF A01

In 1975, the USAF recognized the need to provide protective equipment to aircrews that would allow them to accomplish

their operational missions after having been attacked by an enemy using chemical warfare agents. This requirement was deemed to be an urgent one; thus, a two phase program was initiated. Phase one was the development and production of near term equipment which would provide the required operational capability with delivery of equipment to the field to begin within two years. Phase two consists of a longer term program to provide more complete protection with a reduced operational burden.

Author

N80-14735# Service Technique de l'Aeronautique, Paris (France).
CONCERNING INDIVIDUAL EQUIPMENT FOR FIGHTER
PILOTS IN THE AIR FORCE [A PROPOS DES EQUIPEMENTS INDIVIDUELS DES PILOTES DE CHASSE DE
L'ARMEE DE L'AIR]

P. H. V. Gaspa In AGARD Maintenance of Air Operations While Under Attack with Chem. Agents Sep. 1979 3 p In FRENCH

Avail: NTIS HC A04/MF A01

In addition to the protection provided for all the armed services by way of protective suits, gloves, foot coverings, and masks for filtering particles, aircraft pilots require equipment that must be integrated with the aircraft, with parachutes, with the oxygen supply, and with survival equipment. It must meet the particular specification to provide minimal comfort needed to maintain the potential psychophysiology of the pilots, so they can accomplish their mission (which is always delicate in three dimensional space) in the midst of toxic flight factors and enemy intervention. There must be no thermal nor respiratory constraints. The design of equipment cannot impede pilot movements, the observation of parameters useful for flight, the carrying out of certain commands, nor the tactile agility of the fingers.

Transl. by A.R.H.

N80-14736# Air Force Systems Command, Wright-Patterson AFB, Ohio. Life Support System Program Office.

US AIRCREW CHEMICAL DEFENSE ASSEMBLIES

Charles H. Leone and Paul F. Fallon In AGARD Maintenance of Air Operations While Under Attack with Chem. Agents Sep. 1979 7 p.

Avail: NTIS HC A04/MF A01

The current aircrew chemical defense ensemble which is divided into four subsets: eye/respiratory/head, body, hand and foot protection is described. The associated chemical agent and flight qualification testing is discussed for each piece of equipment. The status of follow on development efforts which concentrate on the aircrew chemical defense eye/respiratory/head protection is reviewed.

A.R.H.

N80-14737# Bluecher G.m.b.H. Duesseldorf (West Germany). FRG AIRCREW CHEMICAL DEFENCE ASSEMBLIES
Hubert vonBluecher In AGARD Maintenance of Air Operations While Under Attack with Chem. Agents Sep. 1979 4 p

Avail: NTIS HC A04/MF A01

Topics covered include: (1) nonbattle casualty (NBC)-protection gloves for high performance aircraft pilots; (2) SAr spherical adsorber systems; (3) the NBC-protective suit (or garment) for German propeller-aircraft pilots with emphasis on construction of the materials, life-time, and influence of water and sweat: and (4) flame-proofing for NBC-protective clothing.

A.R.H

N80-14738# Air Force Systems Command, Wright-Patterson AFB, Ohio. Life Support System Program Office.

INTEGRATION OF PROTECTION AGAINST CHEMICAL WARFARE AGENTS WITH AIRCREW PERSONAL EQUIPMENT

John J. McCambridge and Charles H. Leone In AGARD Maintenance of Air Operations While Under Attack with Chem. Agents Sep. 1979 3 p

Avail: NTIS HC A04/MF A01

Protection of the aircrew member through personal equipment is a concept which assumes that such protection can not be provided in any other way. Current efforts to incorporate chemical defensive capabilities into protective equipment for the eyes,

respiratory system, body, hands, and feet are described. Integration of chemical agent protection into life support systems on a superior plane would eliminate the need for providing protection through personal equipment - a shirt sleeve environment, so to speak. Such a concept would require protection of the cockpit interior at all times from the introduction of chemical agents and would require the effective filtration of influent air by the environmental control systems.

A.R.H.

N80-14739# Advisory Group for Aerospace Research and Development, Paris (France).

SURVEY OF METHODS TO ASSESS WORKLOAD

Bryce O. Hartman, ed. (School of Aerospace Med.) and Richard E. McKenzie, ed. (School of Aerospace Med.) Aug. 1979 160 p refs

(AGARD-AG-246; ISBN-92-835-1332-0) Avail: NTIS

Methods of measuring aircrew workload are reviewed. The methods reviewed include areas of systems design engineering, operations research, the behavioral sciences, aerospace medicine, physiology, biochemistry, and biotechnology in general. The measurement domains include measures of sensory threshold, measures of sensory integration, cognitive function tests, measures of motor function, vigilance, reaction time, psychophysiologic responses, and physiologic and biochemical changes.

N80-14740# Gartner (Walter B.) and Murphy (Miles R.), Menlo Park, Calif.

CONCEPTS OF WORKLOAD

Walter B. Gartner and Miles R. Murphy In AGARD Surv. of Methods to Assess Workload Aug. 1979 p 1-2 refs

Avail: NTIS HC A08/MF A01

A summary of the attempts made to quantify the workload imposed on a pilot by a particular aircraft design or operational procedure, or to access the effects of fatigue upon system performance are discussed in regard to the more precise specification of workload and fatigue concepts and to the adequacy of assessment criteria and techniques. The principle unresolved issues in conceptualizing and measuring pilot workload and fatigue are addressed. The conception of workload is divided into three functionally related components: (1) input load, (2) operator effort, and (3) work result.

N80-14741# Gartner (Walter B.) and Murphy (Miles R.), Menlo Park Calif

CONCEPTS OF FATIGUE

Walter B. Gartner and Miles R. Murphy In AGARD Surv. of Methods to Assess Workload Aug. 1979 p 3-5 refs

Avail: NTIS HC A08/MF A01

A survey of the concepts of pilot fatigue is reviewed. The problem in defining the concept of fatigue and dealing effectively with fatigue is discussed. Factors such as task demands or protracted effort toward fatigue are investigated. Factors such as individual differences in personality, motivation, physical fitness, and life style are considered in the investigation.

A.W.H.

N80-14742# School of Aerospace Medicine, Brooks AFB, Tex. Crew Technology Div.

CONCEPTS OF STRESS

Richard E. McKenzie *In* AGARD Surv. of Methods to Assess Workload Aug. 1979 p 7-9 refs

Avail: NTIS HC A08/MF A01

A survey of studies on the concept of stress from flight fatigue is presented. The physiological and psychological factors resulting from stress are examined. Relaxation as an adaptive response to stress is discussed. The use of biofeedback as an adaptive strategy for stress is studied.

A.W.H.

N80-14743# Italian Air Force Medical Service H. Q., Rome. SOME CONSIDERATIONS CONCERNING METHODS TO EVALUATE AND ASSESS WORKLOAD IN AIRCRAFT PILOTS

Gaetano Rotondo In AGARD Surv. of Methods to Assess Workload Aug. 1979 p 11-12 refs

Avail: NTIS HC A08/MF A01

Methods for analyzing the various stressing and fatiguing factors that act on the body and psyche of aircrafts' pilots during their specific activity are examined. The variations in the urinary excretion of corticosteroids and especially catecholamine during stress and fatigue are discussed.

N80-14744# School of Aerospace Medicine, Brooks AFB, Tex. Crew Technology Div.

PHYSIOLOGIC ASPECTS OF WORKLOAD/FATIGUE/ **STRESS**

Layne P. Perelli In AGARD Surv. of Methods to Assess Workload Aug. 1979 p 13-16 refs

Avail: NTIS HC A08/MF A01

The physiological mechanisms of the aircraft pilot reacting to the effects of workload, the effects of fatigue, or the effects of stress are described. The long term physiological indicators of stress, workload and fatigue recovered from pilots and measured as urinary metabolites are examined. The cardiac activity indicators. heart rate and heart rate variability, are discussed as a tool in evaluating pilot workload. AWH

N80-14745# School of Aerospace Medicine, Brooks AFB, Tex. Crew Technology Div.

SOME INSIGHTS RELATIVE TO THE MAN-MACHINE SYSTEM: AN OVERVIEW OF TEN YEARS OF RESEARCH Richard E. McKenzie and Bryce O. Hartman In AGARD Surv. of Methods to Assess Workload Aug. 1979 p 17-18 refs

Avail: NTIS HC A08/MF A01

The operator skills and the specific tasks involved in current operational aircraft, airborne weapons systems, and space systems are discussed in relation to pilot performance. The effects of fatigue and/or stress upon the pilot operating the systems are reviewed through past research methods. The relationship between information processing ability and aircrew performance is examined.

N80-14746# Virginia Polytechnic Inst. and State Univ., Blacksburg.

AIRCREW WORKLOAD ASSESSMENT TECHNIQUES

Walter W. Wierwille, Robert C. Williges, and Samuel G. Schiffett (NATC, Patuxent River, Md.) In AGARD Surv. of Methods to Assess Workload Aug. 1979 p 19-54 refs

Avail: NTIS HC A08/MF A01

A classification scheme is presented which summarizes a survey and analysis of aircrew workload assessment techniques relevant to inflight test and evaluation considerations. Two dimensions consisting of universal operator behaviors and workload assessment methodologies were used in the classification scheme. The universal operator behaviors were classified into categories including perceptual, mediational, communication, and motor processes; whereas the workload assessment methodologies were cataloged under the general categories of subjective opinion, spare mental capacity, primary task, and physiological measures. An applicability matrix based on this classification scheme is presented which summarizes existing research on workload assessment methodologies. Procedures are described whereby this matrix is used as a guide for selecting candidate aircrew workload assessment measures for inflight evaluation. A brief overview of the various workload assessment techniques is presented along with a set of critical criteria that need to be considered in evaluating the feasibility of these measures for inflight environments. A.W.H.

N80-14747# Air Force Systems Command, Wright-Patterson AFB, Ohio. Human Engineering Div.

WORKLOAD ASSESSMENT METHODOLOGY DEVELOP-MENT

Billy M. Crawford In AGARD Surv. of Methods to Assess Workload Aug. 1979 p 55-67 refs

Avail: NTIS HC A08/MF A01

The development of a method to determine efficient crew compositions, appropriate assignments of duties and responsibilities to crew members, and effective allocations of functions and tasks among men, machines and computers is discussed. The use of the method to identify the critical periods in a task or mission during which the operator's performance is particularly prone to degradation or failure because of work overload stress is examined. Emphasis is placed on man computer interactions and information processing/decision making functions which are not adequately accounted for by conventional human performance metrics, task analysis, time and motion, and time line methods.

N80-14748# School of Aerospace Medicine, Brooks AFB, Tex. QUANTITATIVE MILITARY WORKLOAD ANALYSIS Richard A. Albanese In AGARD Surv. of Methods to Assess

Workload Aug. 1979 p 69-71 refs

Avail: NTIS HC A08/MF A01

A method of tradeoff analysis as applied to workload analysis in the military environment is discussed. It is suggested that workload studies be performed in a tradeoff setting which allows the analyst to estimate the return on investment he has earned through his proposed system modifications. The methodologies described employ mathematical modeling techniques, and it is reinforced that these techniques are an adjunct to, and not a replacement of, more traditional methods of workload analysis.

K L

A.W.H.

N80-14749# Army Aeromedical Research Lab., Fort Rucker, Ala.

VISUAL PERFORMANCE: A METHOD TO ASSESS WORKLOAD IN THE FLIGHT ENVIRONMENT

R. Simmons, M. Sanders, and K. Kimball In AGARD Surv. of Methods to Assess Workload Aug. 1979 p 73-81 refs

Avail: NTIS HC A08/MF A01

A method of assessing the workload requirements imposed on the visual system is discussed. The results suggest that the theory is a valuable tool in testing and determining what the visual workload level should be for combat proficient pilots, how long pilots with varying degrees of proficiency should be expected to fly in the combat environment, and aircraft design requirements (such as stability) to reduce the onset of fatigueinduced errors. Additionally, the theory can be utilized to test and determine varying mission related workload, as well as the workload required by special equipment such as the night vision goggles, navigation equipment, and experimental flight displays.

N80-14750# Royal Aircraft Establishment, Bedford (England). HANDLING QUALITIES, WORKLOAD AND HEART RATE Alan H. Roscoe In AGARD Surv. of Methods to Assess Workload Aug. 1979 p 83-91 refs

Avail: NTIS HC A08/MF A01

Examples are given of the use of heart rates to augment pilots' opinions of handling and workload during various flight trials. It is shown that this technique gives reasonably good indications of the workload generated by particular handling qualities. Raw data in the form of beat-to-beat heart rate are invaluable for revealing rapid and short duration changes in handling qualities which affect workload. ΚL

N80-14751# Office of Naval Research, Arlington, Va. BRAIN WAVES AND THE ENHANCEMENT OF PILOT **PERFORMANCE**

G. H. Lawrence In AGARD Surv. of Methods to Assess Workload Aug. 1979 p 93-102 refs

Avail: NTIS HC A08/MF A01

Aspects of brain wave research and brain-behavior relationships that are potentially useful in simulated aircraft crew stations are discussed. A pilot performance research paradigm for studying the use of brain waves is presented.

N80-14752# California Univ. at Los Angeles. Dept. of Psychology.

PUPILLOMETRIC METHODS OF WORKLOAD EVALUA-TION: PRESENT STATUS AND FUTURE POSSIBILITIES Jackson Beatty In AGARD Surv. of Methods to Assess Workload Aug. 1979 p 103-109 refs

Avail: NTIS HC A08/MF A01

The use of pupillometric measures in the evaluation of pilot workload is discussed. The innervation of the pupil is described with respect to its connections with brainstem activation systems. Modern methods for pupillometric measurement are described and a series of experiments describing pupillary response in a variety of information processing tasks is reviewed.

K.L.

N80-14753# Dunlap and Associates, Inc., La Jolla, Calif. AIRCREW PERFORMANCE RESEARCH OPPORTUNITIES USING THE AIR COMBAT MANEUVERING RANGE (ACMR)

Clyde A. Brictson and Anthony P. Ciavarelli /n AGARD Surv. of Methods to Assess Workload Aug. 1979 p 111-113 refs

(Contract N61339-77-C-0167) Avail: NTIS HC A08/MF A01

Three years of aircrew performance measurement using the Navy's ACMR are presented as evidence of ACMR's research potential. Performance assessment methods used to evaluate pilot proficiency are described. The aircrew assessment methods are used to identify squadron performance differences, evaluate competitive exercises, and provide diagnostic training feedback to operational users. The use of continuously recorded quantitative measures from systems such as ACMR should stimulate more aircrew performance field research ideas. The availability of objective performance criteria promises to be of substantial benefit to both the operational user and the research community in such areas as pilot selection and training, fleet combat readiness, and pilot workload and stress.

K.L.

N80-14754# Royal Air Force Inst. of Aviation Medicine, Farnborough (England).

SPEECH PATTERNS AND AIRCREW WORKLOAD

R. Cannings In AGARD Surv. of Methods to Assess Workload Aug. 1979 p 115-127 refs

Avail: NTIS HC A08/MF A01

Research into the use of speech patterns for workload analysis is reviewed in terms of a simple speech production model. The applications of analysis techniques are considered.

K.L.

N80-14755# National Aviation Facilities Experimental Center, Atlantic City, N. J.

AN EXPLORATORY STUDY OF PSYCHOPHYSIOLOGICAL MEASUREMENTS AS INDICATORS OF AIR TRAFFIC CONTROL SECTOR WORKLOAD

Richard E. McKenzie, Edward P. Buckley, and Kiriako Sarlanis In AGARD Surv. of Methods to Assess Workload Aug. 1979 p 129-133 refs

Avail: NTIS HC A08/MF A01

The possibility of relating physiological measures to some aspects of the controller's task (ie. traffic density and the occurrence of aircraft conflicts) was explored. It was found that galvanic skin response changes in the subjects were more detectable using variations in measured amplitude as compared to frequency of galvanic skin response changes.

K.L.

N80-14756# National Aviation Facilities Experimental Center, Atlantic City, N. J.

INDIVIDUAL AND SYSTEM PERFORMANCE INDICES FOR THE AIR TRAFFIC CONTROL SYSTEM

Edward P. Buckley, William F. OConnor, and Tom Beebe In AGARD Surv. of Methods to Assess Workload Aug. 1979 p 135-136

Avail: NTIS HC A08/MF A01

The relationships between field air traffic controller performance indices and system performance measures were examined. Performance criteria developed within the controller's home facility where he controlled live traffic, and with a specially designed microsystem with simulated traffic were used.

K.L.

N80-14757# Civil Aeromedical Inst., Oklahoma City, Okla. Aviation Physiology Lab.

WORKLOAD AND STRESS IN AIR TRAFFIC CONTROL-LERS

Carl E. Melton In AGARD Surv. of Methods to Assess Workload Aug. 1979 p 137-144 refs

Avail: NTIS HC A08/MF A01

Data collected at 14 air traffic control facilities regarding air traffic controller (ATCS) workload and urinary stress indicator hormone excretion is reviewed. The data show a significant relationship between objective workload measures (radio transmission time and traffic counts) and indexes of catecholamine excretion. Mean epinephrine excretion by ATCS's at six air traffic control towers, ranging from very low to very high traffic density, was significantly (R = 0.96) related to annual traffic counts at those towers. The sympatho-adrenomedullary axis that prepares the organism for fight or flight is applicable to ATCS's. The question of underload, optimum load, and overload is discussed.

N80-14758# School of Aerospace Medicine, Brooks AFB, Tex. Crew Technology Div.

ASSESSMENT CORRELATES OF WORKLOAD AND PERFORMANCE

Richard E. McKenzie *In* AGARD Surv. of Methods to Assess Workload Aug. 1979 p 145-161 refs

Avail: NTIS HC A08/MF A01

Psychological, physiological, stress, and central nervous system correlates of assessment that may help in measuring and assessing human workload and performance are reviewed. Psychophysiological monitoring of central nervous function is discussed.

K.L.

N80-15778*# National Aeronautics and Space Administration, Washington, D. C.

INFLUENCE OF HYPOKINESIS ON PHYSIOLOGICAL FUNCTIONS IN FOWL

J. Nvota, D. Lamosova, D. Tesarova, V. Cierna, and P. Vyboh Dec. 1979 14 p refs Transl. into ENGLISH from Vet. Med. (Prague). v. 22, no. 7, 1977 p 425-432 Transl. by Kanner (Leo) Associates, Redwood City. Calif. (Contract NASw-3199)

(NASA-TM-75999) Avail: NTIS HC A02/MF A01 CSCL 06B

The effects of hypokinesis and postincubation stress (which are characteristic for modern techniques of poultry cage keeping) on the endocrine functions, metabolic reactions, body weight growth and proteosynthesis in the muscle of cocks was investigated. The stress due to hypokinesis was observed in growing cocks housed in metallic cages in which they could hardly turn around. The findings obtained indicate that a 35-day hypokinesis did not exert any more significant influence both on physiological functions and body weight growth as well as on proteosynthesis in the muscle of cocks under study; however, it speeded up the protein metabolism in the muscle. The postincubation stress modified significantly the hypokinesis effect. Findings recorded in birds differed considerably from findings obtained in laboratory mammals, in which the hypokinesis induced significant changes in endocrine functions, body weight decrease and proteosynthesis disorders. A good tolerance of hypokinesis by fowl can be interpreted not only by the phylogenetic remoteness of the compared species but also by the domestication. R.E.S.

N80-15779*# National Aeronautics and Space Administration, Washington, D. C.

THE COURSE OF EXPERIMENTAL STAPHYLOCOCCUS INFECTION IN ALBINO MICE DURING ACTION OF CERTAIN FACTORS OF SPACE FLIGHT

V. Ya. Prokhorov, V. M. Shilov, and E. A. Borman Jan. 1980 8 p refs Transl. into ENGLISH from Zh. Mikrobiol., Epidemiol. i Immunol. (USSR), v. 47, no. 11, 1970 p 82-86 Transl. by Kanner (Leo) Associates, Redwood City, Calif.

(Contract NASw-3199)

(NA SA-TM-75973) Avail: NTIS HC A02/MF A01 CSCL 06C

A study was made of the effect of certain factors of space flight, acceleration and hypokinesia, on the course of experimental staphylococcus infection in mice. Combined action of hypokinesia and acceleration caused a marked depression of the phagocytic activity of leukocytes and formation of a considerable amount of alpha toxin.

Author

N80-15780*# National Aeronautics and Space Administration, Washington, D. C.

EVOKED POTENTIALS IN IMMOBILIZED CATS TO A COMBINATION OF CLICKS WITH PAINFUL ELECTROCUTANEOUS STIMULI

M. A. Gilinskiy and I. A. Korsakov Nov. 1979 18 p refs Transl. into ENGLISH from Zh. Vyssh. Nerv. Deyatel. (Moscow), v. 23, no. 4, 1973 p 855-863 Transl. by Scientific Translation Service. Box 5456. Santa Barbara, Calif.

(Contract NASw-3198)

(NASA-TM-75941) Avail: NTIS HC A02/MF A01 CSCL 06C

Averaged evoked potentials in the auditory, somatosensory, and motor cortical zones, as well as in the mesencephalic reticular formation were recorded in acute experiments on nonanesthetized, immobilized cats. Omission of the painful stimulus after a number of pairings resulted in the appearance of a delayed evoked potential, often resembling the late phases of the response to the painful stimulus. The characteristics of this response are discussed in comparison with conditioned changes of the sensory potential amplitudes.

K.L.

N80-15781*# National Aeronautics and Space Administration, Washington, D. C.

ACTIVITY OF CHOLINESTERASES OF BLOOD AND HEART IN RATS OF DIFFERENT SEX AND AGE DURING MUSCULAR LOADS AND HYPOKINESIA

V. D. Rozanova and G. A. Antonova Dec. 1979 14 p refs Transl. into ENGLISH from Fiziolhk. Zh. SSSR (USSR), v. 64, no. 7, 1978 p 999-1003 Transl. by Scientific Translation Service, Box 5456, Santa Barbara, Calif.

(Contract NASw-3198)

(NASA-TM-75951) Avail: NTIS HC A02/MF A01 CSCL 06C

The activity of acetylcholinesterase (Ache) and butyrilcholinesterase (Bche) in the blood and the heart of 3 and 13 month old control male rats is considerably lower than in female rats. In 25 month old rats, no sex differences in the Ache and Bche were revealed in the heart. In 3 and 13 month old male and female rats, under conditions of muscular exercises, the Ache and Bche activity is lower, and in hypokinetic male rats -- higher than that in respective control animals. In all the rats, irrespective of sex, age, and motor conditions, Ache and Bche activity tended to decrease from the sinoatrial node to the heart apex. Author

N80-15782*# National Aeronautics and Space Administration, Washington, D. C.

RAT REACTION TO HYPOKINESIA AFTER PRIOR ADAPTA-TION TO HYPOXIA

Z. 1. Barashova and O. I. Tarakanova Jan. 1980 13 p refs Transl. into ENGLISH from Fiziolhk. Zh. SSSR (USSR), v. 15. no. 3, 1974 p 434-439 Original language document previously announced as A74-31091 Transl. by Kanner (Leo) Associates. Redwood City, Calif.

(Contract NASw-3199)

(NASA-TM-75964) Avail: NTIS HC A02/MF A01 CSCL O6C

The effect of prior hypoxia adaptation on body tolerance to hypokinesia was investigated. Rats trained to a 50 day period of hypokinesia and hypoxia with a preliminary month of adaptation to hypoxia showed less weight loss, higher indices for red blood content, heightened reactivity of the overall organism and the central nervous system to acute hypoxia, and decreased modification of the skeletal muscles compared to rats subjected to hypokinesia alone.

N80-15783* # National Aeronautics and Space Administration, Washington, D. C.

STUDY ON THE NEURONAL CIRCUITS IMPLICATED IN POSTURAL TREMOR AND HYPOKINESIA

L. J. Poirier (Canadian Med. Res. Council), G. Bouvier (Canadian Med. Res. Council), P. Bedard (Canadian Med. Res. Council), R. Boucher (Canadian Med. Res. Council), L. Larochelle (Canadian Med. Res. Council), A. Oliver (Canadian Med. Res. Council), and P. Singh (Laval Univ.) Jan. 1980 43 p refs Transl. into ENGLISH from Rev. Neurol. (Paris), v. 120, no. 1, 1969 p 15-40 Transl. by Kanner (Leo) Associates, Redwood City, Calif. (Contract NASw-3199)

(NASA-TM-76004) Avail: NTIS HC A03/MF A01 CSCL 06C

The effect of various tegmentary lesions at the level of the pontomesenchphalon in monkeys on motor function was observed. The importance of the monoaminergic mechanisms of the brainstem is discussed. The results also show the importance of the descending tegmentary rubral system and the rubroolivocerebellar circuit in controlling peripheral motor activity. The destruction of the sensory motor cortex proves to be a more effective way of eliminating spontaneous or harmaline induced tremor than the complete interruption of the pyramidal system on the level of the cerebral peduncle.

N80-15784# Argonne National Lab., III. CHARGE SEPARATION IN SYNTHETIC PHOTO-REACTION CENTERS

J. J. Katz 1978 22 p refs Presented at the Workshop on Light-Induced Charge Separation at Interfaces in Biol. and Chem. Systems, West Berlin, 16 Oct. 1978 (Contract W-31-109-eng-38)

(CONF-781048-1) Avail: NTIS HC A02/MF A01

On the basis of electron paramagnetic resonance studies, there is good reason to suppose that the primary electron donor in plant and bacterial photo-reaction centers is a special pair of chlorophyll molecules. The donor-acceptor coordination interactions characteristics of chlorophyll are used to suggest a structure for the chlorophyll special pair. Chlorophyll special pairs with the suggested structure were prepared in the laboratory. These synthetic reaction centers mimic the essential features of P700 and P865 and provide a useful route to the study of electron transfer from in vivo photo-reaction centers.

N80-15785# Rensselaer Polytechnic Inst., Troy, N. Y. COMPARISON OF DIURNAL FLUCTUATIONS OF DIS-SOLVED INORGANIC CARBON AND ALGAL PRODUCTIVITY ESTIMATES IN AN OLIGOTROPHIC AND MESOTROPHIC FRESHWATER ENVIRONMENT

Paul A. Amodeo, Jr. and Nicholas L. Clesceri Jul. 1979 31 prefs

(Contract DI-14-34-0001-7172)

(PB-301201/0; OWRT-B-060-NY(1); W80-00002) Avail: NTIS HC A03/MF A01 CSCL 06C

Factors influencing the daily periodicity of algal carbon incorporation were investigated. Carbon, in the form of dissolved CO2, is proposed as a major limiting nutrient in both an oligotropic and mesotrophic environment. A relationship between diurnal fluctuations of dissolved inorganic and algal carbon uptake was demonstrated by use of carbon-14 as a radio-carbon tracer. A possible correlation of the above fluctuations with the excretion of organic matter by algae is proposed. Work was conducted at Gull Bay, Lake George, New York and Willsboro Bay, Lake Champlain, New York.

N80-15786# Utah State Univ., Logan. Utah Water Research Lab.

WASTE STABILIZATION LAGOON MICROORGANISM REMOVAL EFFICIENCY AND EFFLUENT DISINFECTION WITH CHLORINE Final Report, Aug. 1975 - Aug. 1976

Bruce A. Johnson, Jeffrey L. Wight, David S. Bowles, James H. Reynolds, and E. Joe Middlebrooks Jul. 1979 386 p refs (Contract EPA-68-03-2151)

(PB-300631/9; EPA-600/2-79-018) Avail: NTIS HC A17/MF A01

The project objectives are to evaluate: (1) the amenability of algae-laden lagoon effluent to chlorine disinfection: and (2) the performance of a multi-cell lagoon system in removing coliform bacteria by natural means without the need for disinfection. Results indicate that adequate disinfection was obtained with combined chlorine residual within a contact period of 60 minutes. Filtered effluent was found to exert less chlorine demand than unfiltered. Temperature, sulfide, and total chemical oxygen demand were the most important factors affecting the chlorine dose necessary to achieve a specified bacteriological quality. A mathematical model was developed for use in selecting the optimal chlorine dosages needed for achieving prescribed levels of disinfection.

N80-15788*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, Tex.

THE PHYSIOLOGICAL BASIS FOR SPACECRAFT ENVIRON-MENTAL LIMITS

J. M. Waligora, comp. Washington Nov. 1979 229 p refs (NASA-RP-1045; S-487) Avail: NTIS HC A11/MF A01 CSCL 06K

Limits for operational environments are discussed in terms of acceptable physiological changes. The environmental factors considered are pressure, contaminants, temperature, acceleration, noise, rf radiation, and weightlessness.

N80-15789*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, Tex. ATMOSPHERE

D. J. Horrigan In its The Physiol. Basis for Spacecraft Environ. Limits Nov. 1979 p 1-15 refs

Avail: NTIS HC A11/MF A01 CSCL 06K

The physiological basis of the limits established for atmospheric pressure as well as the partial pressures of oxygen, carbon dioxide, water vapor, and diluent gas are reviewed.

K.L.

N80-15790*# Southwest Foundation for Research and Education, San Antonio, Tex.

CONTAMINANTS

H. L. Kaplan In NASA. Johnson Space Center The Physiol. Basis for Spacecraft Environ. Limits Nov. 1979 p 17-56 refs

Avail: NTIS HC A11/MF A01 CSCL 06K

Spacecraft contaminants, their sources, and their toxicological effects are summarized. The problems of identifying toxic hazards, establishing standards for their concentrations, and designing removal systems are discussed.

N80-15791*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, Tex.

THERMAL ENVIRONMENT

Avail: NTIS HC A11/MF A01 CSCL 06K

The physiological effects, discomfort, and performance degradation associated with an imbalanced thermal environment are discussed. Temperature tolerance limits are set using thermoregulation models and experimental results. The effects of interacting environmental factors, individual variations, and exposure duration on tolerance limits are considered. K.L.

N80-15792*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, Tex. PHYSICAL FORCES GENERATING ACCELERATION, VIBRATION, AND IMPACT

J. M. Waligora In its The Physiol. Basis for Spacecraft Environ.

Limits Nov. 1979 p 71-107 refs

Avail: NTIS HC A11/MF A01 CSCL 06K

The physiological effects of forces resulting in radial acceleration, sustained linear acceleration, impact, or vibration are identified. Tolerance limits are presented for these forces. K.L.

N80-15793*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, Tex. SOUND AND NOISE

J. L. Homick *In its* The Physiol. Basis for Spacecraft Environ. Limits Nov. 1979 p 109-147 refs

Avail: NTIS HC A11/MF A01 CSCL 06K

The effects of audible sound and noise, infrasound, and ultrasound on man are discussed. Those factors which have potential relevance to the space flight situation are emphasized. K.L.

N80-15794*# National Aeronautics and Space Administration. Lyndon B. Johnson Space Center, Houston, Tex.

RADIOFREQUENCY RADIATION

Avail: NTIS HC A11/MF A01 CSCL 06R

Sources, biophysical characteristics, and potential biological effects of rf radiation are described. Standards are given for exposure of spacecraft personnel to rf radiation.

K.L.

N80-15795*# General Electric Co., Houston, Tex. WEIGHTLESSNESS

D. J. Grounds In NASA. Johnson Space Center The Physiol. Basis for Spacecraft Environ. Limits Nov. 1979 p 169-185 refs

Avail: NTIS HC A11/MF A01 CSCL 06S

The general physiological effects of weightlessness are discussed with emphasis on the physiological effects that could limit mission durations in the absence of effective countermeasures.

K.L.

N80-15796*# National Aeronautics and Space Administration, Washington, D. C.

JOINT SOVIET-AMERICAN EXPERIMENT ON HYPOKINESIA: EXPERIMENTAL RESULTS

N. N. Burovskiy Dec. 1979 320 p refs Transl. into ENGLISH of "Sovmestnyy Sovetsko-Amerikanskiy Eksperiment po Giopokinezii. Otchet. Rezul'taty Sovmestnogo Eksperiments", USSR Acad. of Sci. and Ministry of Health, Moscow, Oct. 1979 p 1-372 Transl. by Kanner (Leo) Associates, Redwood City, Calif. (Contract NASw-3199)

(NASA-TM-76013) Avail: NTIS HC A14/MF A01 CSCL 06S

Comprehensive results are reported from the Soviet portion of a joint Soviet-American experiment involving hypokinesia. The main emphases are on chemical analyses of blood and urine, functional tests, and examination of the cardiovascular system by electrocardiography, echocardiography, and plethysmography.

Author

N80-15797*# National Aeronautics and Space Administration, Washington, D. C.

MESULTS OF MEDICAL STUDIES DURING LONG-TERM MANNED FLIGHTS ON THE ORBITAL SALYUT-6 AND SOYUZ COMPLEX

A. D. Yegorov, comp. Nov. 1979 245 p refs Transl. into ENGLISH of "Rezultaty Meditsinskikh Issledovaniy vo Vrēmya Dlitel'nykh Pilotiruyemykh Polyetov na Orbital'nom Komplekse 'Salyut-6--Soyuz''', USSR Acad. of Sci., Inst. of Med. and Biol. Problems, Moscow, 1979 Transl. by Kanner (Leo) Associates, Redwood City, Calif.

(Contract NASw-3199)

(NASA-TM-76014) Avail: NTIS HC A11/MF A01 CSCL 06P

Results of tests made on the crews of the Salyut-6 and Soyuz complex are presented. The basic results of studies made

before, during and after 96-day and 140-day flights are presented in 5 sections: characteristics of flight conditions in the orbital complex; the cardiovascular system; the motor sphere and vestibular analyzer; biochemical, hematologic and immunologic studies; and recovery measures in the readaptation period.

Author

N80-15798*# National Aeronautics and Space Administration, Washington, D. C.

CHANGES OF SOME BLOOD INDICES AND MYOCARDIAL ELECTROLYTE CONTENT DURING HYPOKINESIA

B. M. Fedorov, V. P. Krotov, and Ye. N. Zhuravleva Nov. 1979 12 p refs Transl. into ENGLISH from Patol. Fiziol. Eksp. Ter. (USSR), no. 6, Nov. - Dec. 1973 p 27-31 Transl. by Scientific Translation Service, Santa Barbara, Calif.

(Contract NASw-3198)

(NASA-TM-75954) Avail: NTIS HC A02/MF A01 CSCL 068

Using special hypokinetic cages, the volume changes of circulating blood, its hematocrit and protein content, volume ratios between extra- and intracellular liquids in the body, as well as electrolyte content in the blood and myocardium during hypokinesia were investigated experimentally in rabbits. R.E.S.

N80-15799*# National Aeronautics and Space Administration. Washington, D. C.

MECHANISM OF DISORDER OF PLASTIC PROCESSES IN TISSUE DURING PROLONGED HYPOKINESIA

G. A. Makarov Nov. 1979 11 p refs Transl. into ENGLISH from Patol. Fiziol. Eksp. Ter. (USSR), no. 4, Jul. - Aug. 1974 p 41-45 Transl. by Scientific Translation Service, Box 5456, Santa Barbara, Calif.

(Contract NASw-3198)

(NASA-TM-75955) Avail: NTIS HC A02/MF A01 CSCL 065

The subcellular structures of the myocardium, skeletal muscles, liver and kidneys of adult rats subjected to hypokinesia (in immobilization chambers) for 15, 30, and 45 days were studied. An anabolyser (retabolil) and vitamin D (a Ca metabolism regulator) were administered to two groups of rats. On the second week of hypokinesia, inhibition of synthesis processes was observed. Administration of retabolil increased protein synthesis both in the normal and hypokinesia-subjected rats; however, in the latter group, synthesis did not completely normalize, especially in the myocardium. Administration of vitamin D also stimulated protein synthesis, apparently by normalizing Ca tissue metabolism. The combined action of both preparations was the most effective in normalizing protein synthesis intensity. It was concluded that inhibition of synthesis is related to weakening of hormone synthesis induction and disorder of Ca metabolism. Author

N80-15800# Aerospace Medical Research Labs., Wright-Patterson AFB, Ohio.

DAYTIME VISUAL ACUITY OF OBSERVERS THROUGH A WINDOW WITH AND WITHOUT BINOCULARS

Herschel C. Self and Steve A. Heckart Jul. 1979 23 p (AF Proj. 7184) (AD-A074722;

AMRL-TR-79-23) HC A02/MF A01 CSCL 05/5

Visual acuity with and without hand-held M-19 7x50 binoculars was tested inside and outside the cab of a Master Surveillance Control Facility (MSCF) Tower. High, medium and low contrast 3 bar resolution test charts were used at a 400 foot distance. Except for low contrast bar patterns, where loss was not large, unaided eye visual acuity was not impaired by cab windows. With binoculars there was a statistically significant, though not large, window-caused loss of visual acuity for all contrasts. Even so, binocular visual acuity for high, medium and low contrast patterns was 5.6, 5.5, and 4.8 times, respectively. better than unaided eye acuity. Recommendations for the MSCF, based on this study, were made. A section of the report examines visual considerations in fence surveillance.

N80-15801# IIT Research Inst., Chicago, III. BIOLOGICAL EFFECTS OF HIGH-VOLTAGE ELECTRIC

FIELDS, AN UPDATE. VOLUME 2: BIBLIOGRAPHY Final Report

Jul. 1979 268 p refs Sponsored by Elec. Power Res. Inst. (EPRI Proj. 857-1)

(EPRI-EA-1123-Vol-2) Avail: NTIS HC A12/MF A01

Literature on the biological effects of power frequency electric fields are reviewed. The general findings of this update conclude that it is highly improbable that electric fields from transmission lines have significant biological effects on healthy individuals who encounter such fields in a normal way under ordinary conditions. However, further research is still needed in order to understand the nature and extent of any effects that could be

N80-15802# California Univ., Berkeley. Lawrence Berkeley Lab.

SPECIAL SESSION ON VISION

F. S. Montalvo May 1979 13 p refs Presented at the ACM/SIGGraph 1979 Conf. on Computer Grahics and Interactive Techniques, Chicago, Aug. 1978 (Contract W-7405-eng-48)

(LBL-9160; CONF-780806-5) Avail: NTIS HC A02/MF A01 Some results of the visual structuring that occurs in the human visual system were demonstrated. It is shown why some features stand out instanteously and others do not. Knowledge of the human input device and its importance in structuring the design of effective computer output devices and displays is discussed.

N80-15803# Gulf South Research Inst., New Orleans, La. TOXIC POLYPEPTIDES AND UREMIA Final Progress Report, 1 Jun. 1978 - 31 May 1979

K. Ehrlich, E. Klein, F. F. Holland, Jr., and T. Turnham 2 Jul. 1979 47 p refs

NTIS

CSCL

(Contract NO1-AM-8-2205)

(PB-301063/4; AK-1-8-2205F-79)

HC A03/MF A01 CSCL 06C

Uremic serum ultrafiltrate was concentrated and fractionated on Bio-Gel P2 and Sephadex G15 columns. Sephadex fractions were tested for toxicity to human cells in culture. Fractions 1 and 2, containing peptide species with molecular weights greater than 700 daltons, inhibited 3H-thymidine uptake by HeLa and skin fibroblast cells more than the low molecular weight Sephadex material and an iso-osmolar control (saline). Fraction 2, containing molecules with molecular weights of angiotensin and vitamin B-12, inhibited 3H-thymidine incorporation the most (at 774 hours, the incorporation rate was only 2 percent of that of the control for one of the uremic ultrafiltrate concentrates). GRA

N80-15804# Bureau of Radiological Health, Rockville, Md. Div. of Electronic Products.

ELECTROMAGNETIC FIELDS IN BIOLOGICAL MEDIA. PART 2: THE SCAT PROGRAM, MULTILAYERED SPHERE, THEORY AND APPLICATIONS Final Report

Stanley M. Neuder Aug. 1979 30 p refs (PB-300904/0; DHEW/PUB/FDA-79/8072;

FDA/BRH-79/114) Ávail: NTIS HC A02/MF A01

The theory and applications of a computer program, SCAT, for calculating the scattering and power absorption of radiofrequency and microwave radiation by spherical lossy dielectric bodies exposed to linearly polarized plane wave fields are described. The irradiated body may be a homogeneous sphere or multilayered, spherically concentric regions of arbitrary radii. Each region can be made to simulate biological tissue by assigning the appropriate dielectric properties. Induced fields and absorbed power density within these regions may then be calculated for preselected irradiation frequencies. Several applications of the SCAT program are described and associated computer plots are presented and

N80-15805# Research Triangle Inst., Durham, N. C. BIOLOGICAL SCREENING OF COMPLEX SAMPLES FROM INDUSTRIAL/ENERGY PROCESSES Progress Report, Sep. 1978 - Jul. 1979

Aug. 1979 24 p refs

(Contract EPA-68-02-2688)

(PB-300459/5; EPA-600/8-79-021) Avail: NTIS HC A02/MF A01 CSCL 06T

A biological screening program for complex samples from industrial and energy processes is described. Program elements and their application to various complex environmental samples are summarized. Results from the application of this program show that it is effective for screening complex mixtures. The data formating procedures used to report results from a diversity of biological tests in a meaningful way are also described. GRA

N80-15806# Advisory Group for Aerospace Research and Development, Neuilly-Sur-Seine (France).

SLEEP. WAKEFULNESS AND CIRCADIAN RHYTHM

Sep. 1979 283 p refs Lectures held in London, 1-2 Oct. 1979, in Paris, 4-5 Oct. 1979, and in Toronto, 9-10 Oct. 1979 (AGARD-LS-105; ISBN-92-835-0249-3) Avail: NTIS HC A13/MF A01

Papers concerning the physiological and psychological aspects of sleep, and the adaptation of man to disturbed sleep are presented. The management of irregular rest and activity is also discussed.

N80-15807# Centre National de la Recherche Scientifique, Paris (France). Lab. de Physiologie.

CIRCADIAN AND CIRCANNUAL RHYTHMS IN HEALTHY ADULTS

Alain Reinberg In AGARD Sleep. Wakefulness and Circadian Rhythm Sep. 1979 13 p refs

Avail: NTIS HC A13/MF A01

Physiological processes in any living organism including man are not constant as a function of time: regular and predictable variations with period, tau, of about 24 hours (circadian), about 1 year (circannual) etc. can be detected. Each rhythm can be characterized by estimating such parameters as: acrophase theta (crest time), amplitude A and mesor M (rhythm adjusted mean). The estimation of tau, theta, A and M of a set of variables under specified experimental conditions enable the visualization of an aspect of the temporal organization (or biologic time structure). Aims of chronobiology are to quantify and investigate mechanisms of biological time structures. Biological rhythms and the related temporal organization are genetic in origin. However, one or several rhythm parameters may be influenced by cyclical variations of environmental factors (synchronizers or Zeitgeber). The latter has practical implications since phase shifts of synchronizers may occur with transmeridian flights, night-working and shift-working. Chronobiology also involves the study of rhythmic changes in endoctrine activities (chronoendocrinology) and in drugs effects (chronopharmacology). FOS

N80-15808# Deutsche Forschungs- und Versuchsanstalt fuer Luft- und Raumfahrt, Bonn (West Germany). Inst. fuer Flugmedizin.

CIRCADIAN RHYTHMS OF HUMAN PERFORMANCE AND RESISTANCE: OPERATIONAL ASPECTS

Karl E. Klein and Hans-M. Wegmann In AGARD Sleep. Wakefulness and Circadian Rhythm Sep. 1979 17 p refs Also presented at the 4th Ann. Sci. Meeting of the Aerospace Med. Assoc., Bal Harbour, Fla., 13 May 1976

Avail: NTIS HC A13/MF A01

Circadian rhythmicity of mental and physical efficiency, and resistance to noxious hazards are reviewed. The interaction with internal and operational factors and implications are given for the management of human operations. The significance of the biorhythm concept for the prediction of human behavior, and the occurrence of man-related accidents are discussed. F.O.S.

N80-15809# Montefiore Hospital, New York. Dept. of Neurology.

SLEEP STAGE ORGANIZATION: NEURO ENDOCRINE RELATIONS

Elliot D. Weitzman In AGARD Sleep, Wakefulness and Circadian Rhythm Sep. 1979 9 p refs

Avail: NTIS HC A13/MF A01

The circadian and shorter term episodic patterns of hormone systems are discussed. These include ACTH-cortisol; growth hormone (GH); prolactin; and the gonadotrophins, luteinizing hormone (LH); and follicle stimulation hormone (FSH). F.O.S.

N80-15810# Naval Health Research Center, San Diego, Calif. SLEEP DISTURBANCES IN HUMANS

Laverne C. Johnson In AGARD Sleep, Wakefulness and Circadian Rhythm Sep. 1979 16 p refs

Avail: NTIS HC A13/MF A01

Disturbed sleep results in feelings of fatigue and, usually, in impaired performance regardless of whether the disturbed sleep is due to excessive noise or a chronic sleep disorder. In addition to noise, some other environmental factors that disturb sleep are temperature, unscheduled operational demands that fragment sleep time, rotating shift-work schedules, and operational requirements that result in air travel across several time zones. While appropriate attention to sleep logistics may minimize the environmental causes of disturbed sleep, resolution of the disturbed sleep of those with sleep disorders is more difficult. The focus in sleep disorders must be on the individual. The major sleep complaint is insomnia, not enough sleep, usually due to prolonged sleep latency. A more serious medical problem, however, may be the complaint of excessive daytime sleep or hypersomnia. Most patients with complaints of hypersomnia are usually diagnosed as having narcolepsy or sleep apnea. Relative to narcolepsy, sleep apnea (episodes of respiratory arrest during sleep) has only recently received attention. In addition to a sleep problem, sleep apneic patients may have hypertension and/or cardiac arrhythmia.

N80-15811# Centre de Recherches du Service de Sante des Armees, Lyons (France).

VIGILANCE AND ATTENTION

Avail: NTIS HC A13/MF A01

The relations between vigilance and attention are considered using computer, psychological and physiological techniques. After considering the different types of available measures, the factors influencing attention are reviewed. The characteristics of signals, the environmental conditions, the individual features and the possible interactions between these factors are then studied. The various theories are reviewed and a mathematical model is proposed which integrates activation, the use of processing ability and filtering, taking into consideration the data relative to the environment and to motivation. In conclusion, different methods are proposed from ergonomical, psychological and pharmacological viewpoints.

N80-15812# School of Aerospace Medicine, Brooks AFB, Tex. Crew Technology Div.

BIOCHEMICAL INDICES OF STRESS: BIOCHEMICAL ASPECTS OF THE STRESS RESPONSE

Bryce O. Hartman and James P. Ellis In AGARD Sleep, Wakefulness and Circadian Rhythm Sep. 1979 32 p refs

Avail: NTIS HC A13/MF A01

The release of hormones in response to acute flight stresses was investigated in fighter pilots. The biochemical indices discussed include: hormones, hormone precursors, hormone metabolites, nonhormone metabolites, and enzymes of hormone formation/production. Abstracts and operational applications of previously published reports are presented. F.O.S.

Não-15813# Montefiore Hospital, New York. Human Chronophysiology Lab.

BIOLOGICAL RHYTHMS OF MAN LIVING IN ISOLATION FROM TIME CUES

Elliot D. Weitzman, Charles A. Czeisler, and Martin C. MooreEde In AGARD Sleep, Wakefulness and Circadian Rhythm Sep. 1979 9 p refs Prepared in cooperation with Harvard Med. School

Avail: NTIS HC A13/MF A01

The results are presented of prolonged measurements of sleep-waking functions in human subjects for periods of 25 to 105 calendar days in an environment free of all time cues. It was found that the biological rhythms of human beings free-run at periods greater than 24 hours, typically at approximately 25 hours. During free-running, the sleep to total time ratio remains constant, approximately .30.

N80-15814# Naval Health Research Center, San Diego, Calif. SLEEP DISTURBANCE AND PERFORMANCE

Laverne C. Johnson In AGARD Sleep, Wakefulness and Circadian Rhythm Sep. 1979 15 p refs

Avail: NTIS HC A13/MF A01

While the type of sleep obtained does not appear to be an important factor in performance, the time of day the sleep is obtained and when the performance occurs are very important. Time-of-day effects are a more crucial factor in performance than the preceding sleep patterns. The effect of total sleep loss becomes pronounced after 48 to 60 hours, consistent performance decrement following reduced sleep or fragmented sleep was not found. Feelings of fatigue, however, are a consistent finding in all sleep-loss studies. A significant relation between sleep quality (good vs. poor sleep) and performance is not easily found. The deleterious effect of hypersomnia, especially that due to narcolepsy is discussed. F.O.S.

N80-15815# Centre National de la Recherche Scientifique, Paris (France). Lab. de Physiologie.

TOLERANCE TO SHIFT WORK: A CHRONOLOGIC APPROACH

Alain Reinberg In AGARD Sleep, Wakefulness and Circadian Rhythm Sep. 1979 11 p refs

Avail: NTIS HC A13/MF A01

The hypotheses was tested of possible relationships between the amplitude A of the circadian rhythm of oral temperature on the speed of adjustment during shift work, and tolerance to shift work. Study 1 involved 25 oil refinery operators. A negative correlation (r = -0.63; P less than 0.01) was found between the mean A and the acrophase shift delta O resulting from the first night-shift: the larger the A, the smaller the delta O. Study 2 involved 23 steel industry workers and 25 chemical industry workers with either good or poor tolerance to shift work. Tolerance was evaluated conventionally according to 3 types of complaints: digestive troubles, persistant fatique, sleep alterations, Circadian A of oral temperature is larger in subjects who tolerate to shift work than in intolerant subjects. The study 3 involved 29 oil refinery operators and was designed to retest both hypothesis. their complementarity and to take different age groups into account. Good tolerance to shift work, over many years, appears to be associated with a large circadian amplitude and a slow adjustment during night-shifts (small delta O). F.O.S.

N80-15816# Deutsche Forschungs- und Versuchsanstalt fuer Luft- und Raumfahrt, Bonn (West Germany). Flugmedizin.

CIRCADIAN RHYTHMS IN AIR OPERATIONS

Karl E. Klein and Hans-M. Wegmann In AGARD Sleep Wakefulness and Circadian Rhythm Sep. 1979 25 p refs

Avail: NTIS HC A13/MF A01

After a brief introduction into the principles of environmental and biological timing systems, the phenomenology of posttransmeridian de- and re-synchronization of circadian rhythms is presented, its control and modification through external and. internal factors described, and the consequences for human efficiency and health discussed. There are conclusions drawn as to possible relief measures, formulas and models which define the physiological processes, and predict work loads occurring in transmeridian flight operations. Finally, the incorporation of circadian rhythm aspects into Rest/Duty Regulations is described. Author

N80-15817# Centre de Recherches du Service de Sante des Armees, Lyons (France).

PSYCHOSTIMULANTS

M. Defayolle In AGARD Sleep, Wakefulness and Circadian Rhythm Sep. 1979 12 p refs

Avail: NTIS HC A13/MF A01

The state-of-the-art of psychostimulants is reviewed, and a brief historical and geographical survey are presented. The basic neurochemical data on vigilance are considered and the various systems of mediators involved in synaptic conduction are differentiated. The methodology of therapeutic tests on psychotropes is then discussed. The effects induced by the use of the various types of drugs: noo-analeptics, nootropes, thymoanaleptics and metabolic adjuvants are considered. These data are incorporated into a general model of vigilance including the data handling capacity and filtering concepts. The indications and contraindications in the use of psychostimulants are presented.

N80-15818# Royal Air Force Inst. of Aviation Medicine, Farnborough (England).

HYPNOTICS AND THE MANAGEMENT OF DISTURBED SLEEP

A. N. Nicholson, R. G. Borland, and Barbara M. Stone In AGARD Sleep, Wakefulness and Circadian Rhythm Sep. 1979 11 p refs

Avail: NTIS HC A13/MF A01

The effects of hypnotics on visuo-motor performance are discussed. The hypnotics studied include barbiturates, benzodiazepines, diazepam and its hyroxylated metabolites, and nordiazem. The effects of hypnotics on sleep are also discussed.

N80-15819# School of Aerospace Medicine, Brooks AFB, Tex. Crew Technology Div.

MANAGEMENT OF IRREGULAR REST AND ACTIVITY Bryce O. Hartman In AGARD Sleep, Wakefulness and Circadian Rhythm Sep. 1979 13 p refs

Avail: NTIS HC A13/MF A01

Biomedical aspects of the irregularity of air operations are discussed in terms of the requirements of aircrews to work without regards for the clock. In practice, operational managers consider the crew limitations and develop workable compromises between these limitations and mission requirements. That variables that must be considered are listed. Data collected from airlift missions are analyzed along with tactical operations. Sleep and the work-rest cycle during missions are discussed. FOS

N80-15820# Los Alamos Scientific Lab., N. Mex. MENTAL DYNAMICS

F. H. Harlow Jul. 1979 22 p (Contract W-7405-eng-36)

(LA-7946-MS) Avail: NTIS HC A02/MF A01

The nonphysical life activity within an organism is described mathematically by means of a basic formulation to which numerous variations and embellishments are appended as required. The fundamental principle of overall activity normalization is presented and discussed in terms of its practical and philosophical consequences. Discrimination is introduced as a necessary complement to intelligence and creativity in the structure of genius. Future directions for development are described in terms of both deterministic and stochastic analysis for the organism as an isolated unit, as a member of society, and as an interacting element of the natural universe. DOE

N80-15821*# National Aeronautics and Space Administration. Ames Research Center, Moffett Field, Calif.

SOME HUMAN FACTORS ISSUES IN THE DEVELOPMENT AND EVALUATION OF COCKPIT ALERTING AND WARN-ING SYSTEMS

Robert J. Randle, Jr., William E. Larsen, and Douglas H. Williams Washington Jan. 1980 65 p refs (NASA-RP-1055; A-7696) Avail: NTIS HC A04/MF A01 CSCL 05H

A set of general guidelines for evaluating a newly developed cockpit alerting and warning system in terms of human factors issues are provided. Although the discussion centers around a general methodology, it is made specifically to the issues involved in alerting systems. An overall statement of the current operational problem is presented. Human factors problems with reference to existing alerting and warning systems are described. The methodology for proceeding through system development to system test is discussed. The differences between traditional human factors laboratory evaluations and those required for evaluation of complex man-machine systems under development are emphasized. Performance evaluation in the alerting and warning subsystem using a hypothetical sample system is explained.

N80-15822*# National Aeronautics and Space Administration. Washington, D. C.

MODEL TASK FOR THE DYNAMICS OF AN UNDERWATER TWO-LEGGED WALKER

V. V. Beletskiy, V. V. Golubkov, and Ye. A. Stepanova Nov. 1979 49 p refs Transl into ENGLISH of "Modelnaya Zadacha Dinamiki Podovnoy Dvunogoy Khodby", Rept. Preprint-42 Acad. of Sci. USSR, Inst. of Appl. Math., Moscow, 1979 p 1-58 Transl. by Kanner (Leo) Associates, Redwood City, Calif. (Contract NASw-3199)

(NASA-TM-75697; Preprint-42) NTIS Avail. HC A03/MF A01 CSCL 05H

A model task of two-legged underwater walking was examined. Characteristics of the walking were established. The underwater walking device is a substantial sphere, which moves on dual-member legs. The dynamics of the device were investigated with the calculation of the buoyancy of Archimedes. and the force of hydrodynamic resistance.

N80-15823# Perceptronics, Inc., Woodland Hills, Calif. MAN-MACHINE COMMUNICATION IN COMPUTER-AIDED REMOTE MANIPULATION Progress Report, 2 Feb. 1978 -1 Feb. 1979

William H. Crooks, Efraim Shaket, Yee-Yeen Chu, and Yoram Alperovitch Mar. 1979 167 p refs

(Contract N00014-76-C-0603)

(AD-A074566; PATR-1034-79-3) Avail: NTIS HC A08/MF A01 CSCL 05/8

Automated Remote Manipulation is a prime example of a new type of man-machine interaction in which the human operator must supervise and control a complex and often adaptive man-computer system. Computerized control offers the possibilities of improved performance times and reduced operator workloads with teleoperator systems. Computers can be used at various levels of control, ranging from control augmentation, where the computer performs difficult coordinate transformations which simplify operator control requirements, through complete autonomy in which the computer performs all of the required activities with no intervention by the operator. However, with the introduction of computer-based control techniques, the communication between the operator and the teleoperator becomes an important determinant of work system performance. Rather than controlling directly every action of the manipulator, the operator of a computer-controlled manipulator plans the tasks, commands goal-directed actions, monitors task performance, and intervenes when appropriate. This report describes an analytical and experimental study to investigate the effectiveness of command language structures and the methods for providing feedback information through the use of sensors and

N80-15824# Massachusetts Inst. of Tech., Cambridge. Marine Industry Advisory Services.

TELEOPERATORS UNDER THE SEA

Norman Doelling 1 Jul. 1979 26 p refs (PB-299883/9; MITSG-79-15; Opportunity-Brief-14;

NOAA-79080909; Index-79-715-MOT) Avail: NTIS

HC A03/MF A01 CSCL 13J

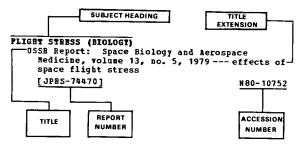
Research projects being carried out to design, develop, test and extend the capabilities of undersea vehicles are described. The projects relate primarily to untethered, unmanned vehicles, in part because such vehicles offer the greatest challenge and in - part because solution to the difficult problems associated with such systems will have useful applications in tethered and/or manned systems now being developed, built, and used.

SUBJECT INDEX

AEROSPACE MEDICINE AND BIOLOGY /A Continuing Bibliography (Suppl. 205)

APRIL 1980

Typical Subject Index Listing



The title is used to provide a description of the subject matter. When the title is insufficiently descriptive of the document content, a title extension is added, separated from the title by three hyphens. The NASA or AIAA accession number is included in each entry to assist the user in locating the abstract in the abstract section of this supplement. If applicable, a report number is also included as an aid in identifying the document.

, •	
Α	
ABILITIES	
Ability, involvement and climate as mult interactive predictors of performance	iple and
[AD-A068891] Methodological and conceptual issues in	N80-14706
understanding ability-performance relation [AD-A068894]	tionships N80-14708
ABIOGENESIS	
A mathematical model of the disruption of symmetry in prebiological evolution	f mirror
ABSTRACTS	A80-20680
Cellular effects: Millimeter waves and Ra	2 M 2 N
spectra - Report of a panel discussion	u mei 11
	A80-21031
ACCELERATION STRESSES (PHYSIOLOGY)	
Physical forces generating acceleration,	
wibration, and impact physiological	l effects N80-15 7 92
ACCELERATION TOLERANCE	NOU- 13/92
Bone remodeling in centrifuged rats -	
Histomorphometric study after an 18-day	
miscomorphometric study atter an 10-day	A80-20450
Physical forces generating acceleration,	H00-20430
vibration, and impact physiological	offorta
paysiological	N80-15792
ACCIDENT PREVENTION	NOU-13/92
Motor Vehicle Manufacturers Association	MTMAL
Two-Dimensional Crash Victim Simulation	tutorial
system: Self-study quide	· cucoriai
[PB-299256/8]	N80-14723
Motor Vehicle Manufacturers Association	(MVMA)
Two-Dimensional Crash Victim Simulation system: Audio-Visual program	tutorial
[PB-299257/6]	N80-14724
MVMA Two-Dimensional Crash Victim Simulat version 4, volume 1	ion,
[PB-299305/3]	N80-14725
MVMA Two-Dimensional Crash Victim Simulat	ion,
version 4, volume 2 [PB-299306/1]	
	N80-14726
MYMA Two-Dimensional Crash Victim Simulat version 4, volume 3	10n,
	N80-14727
CETYL COMPOUNDS	100-14121
The effect of locally applied organophosp	hates on
miosis and acetylcholinesterase adaptat chronic treatment	ion to
	N80-14731

ACOUSTIC IMPEDANCE Static acoustic impedance profiles in au	
diagnosis	iditory
[ASME PAPER 79-WA/BIO-1] ACTIVATED SLUDGE	A80-18643
Health effects of aerosols emitted from activated sludge plant	an
[PB-299583/5]	N80-14696
ACTIVATION (BIOLOGY) Effect of hypogravity on human lymphocyt	e activation
ADAPTATION	
Rat reaction to hypokinesia after prior to hypoxia	adaptation
[NASA-TM-75964] AEROSOLS	N80-15782
Health effects of aerosols emitted from activated sludge plant	an
[PB-299583/5]	N80-14696
AEROSPACE ENVIRONMENTS The Course of experimental stanbylococcu	e
The course of experimental staphylococcu infection in albino mice during action certain factors of space flight	of
[NA SA-TM-75973]	N80-15779
AEROSPACE MEDICINE Scientific biomedical studies during the	flight of
the first Bulgarian cosmonaut	
Space motion sickness	A80-19100
Exercise response to simulated weightles:	A80-20018
	A80-20019
A study of metabolic balance in crewmembe Skylab IV	ers of
Amino aciduria in weightlessness	A80-20021
Fluid volumes changes induced by spacefl	A80-20022 ight
A sudden-stop vestibulovisual test for ra	A80-20023
assessment of motion sickness manifest	ations
Motion sickness. I - A theory. II - A cli	A80-20444 inical
study based on surgery of cerebral hemilesions. III - A clinical study based of	
of posterior fossa tumors	on surgery
Perspectives of the utilization of hyperk	180-20452
oxygenation in aviation medicine	
Steady magnetic fields in noninvasive	A80-20500
electromagnetic flowmetry	A80-21033
The effect of certain extremal factors on	the
human auditory function	A80-21038
The effect of aircraft noise on the funct state of human operators	ional
	A80-21039
The effect of age and vitamin provision o on their night vision characteristics	
Biology and medicine in space: Pesearch	A80-21040
opportunities offered by Spacelab. An	
invitation to European investigators [ESA-BR-01]	N 80-14677
Recent advances in Aeronautical and Space	Medicine
[AGARD-CP-265] Problems related to medical criteria for	N80-14678 the
selection of military navigation person	nel
An advanced oxygen system for future comb	N80-14679 at aircraft
	N80-14680

SUBJECT INDEX

APROSPACE TECHNOLOGY TRANSFER

The European approach to the selection and training of SL payload specialists	concerning individual equipment for fighter pilots in the Air Porce	
N80-1468 I	N80-14735	
Physiological factors in space operations. Emphasis on space shuttle N80-14682	Approaches to CW agent area detection systems for airfields	
supersonic aerial transport: Medical and	N80-14733	
physiological aspects Concorde aircraft N80-14683	ALERTNESS Vigilance and attention	
Maintenance of air operations while under attack	N80-15811	
with chemical agents protective clothing [AGARD-CP-264-SUPPL] Consideration of pyridostigmine as a prophylactic agent for aircrew N80-14730	ALGAB Comparison of diurnal fluctuations of dissolved inorganic carbon and algal productivity estimates in an oligotrophic and mesotrophic freshwater environment	
Integration of protection against chemical warfare	[PB-301201/0] N80-15785	
agents with aircrew personal equipment #80-14738 The course of experimental staphylococcus	ALPHANUMERIC CHARACTERS The effect of character size on the legibility of numeric displays during vertical whole-body	
infection in albino mice during action of	vibration A80-18839	
certain factors of space flight [NASA-TM-75973] N80-15779	AMINO ACIDS	
Results of medical studies during long-term manned flights on the orbital Salyut-6 and Soyuz complex [NASA-TM-76014] N80-15797	Quantitative study of free amino acids in human eccrine sweat excreted from the forearms of healthy trained and untrained men during exercise A80-17727	
AEROSPACE TECHNOLOGY TRANSPER Technologies for the handicapped and the aged	Amino aciduria in weightlessness	
[NASA-TM-80842] N8U-14/15	A mathematical model of the disruption of mirror	
peiters-nucleus potentials evoked by stimulation	symmetry in prebiological evolution A80-20680	
of the neural elements of bones and musculo-cutaneous nerves in animals with the	The informational structure of DNA, RNA, and amino	
cerebrum and cerebellum removed A80-20682	acid sequences A80-20856	
AGE PACTOR	ANEMIAS Development of 'sports anemia' in physically fit	
The effect of age and vitamin provision of pilots on their night vision characteristics	men after daily sustained submaximal exercise A80-20448	
A80-21040	ANTHROPOMETRY	
AGING (BIOLOGY) Review of cell aging in Drosophila and mouse A80-17741	Anthropometric sizing, fit-testing and evaluation of the MBU-12/P oral-nasal oxygen mask	
AGRICULTURAL AIRCRAFT Heat stress exposure of aerial spray pilots A80-20451	[AD-A074723] N80-14692 Design criteria for characterizing individuals in the extreme upper and lower body size ranges	
ATR QUALITY Contaminants physiological effects of	[AD-A072353] N80-14721 ANTICHOLINERGICS	
spacecraft contaminants N80-15790	The effects of acute and chronic low dose exposure to anticholinesterases N80-14729	
AIR TRAFFIC COMTROLLERS (PERSONNEL) An exploratory study of psychophysiological measurements as indicators of air traffic control sector workload	Consideration of pyridostigmine as a prophylactic agent for aircrew N80-14730	
N80-14755 Individual and system performance indices for the	ANTIDOTES Therapy on nerve agent poisoning	
air traffic control system	N80-14/32	
N80-14756 Workload and stress in air traffic controllers N80-14757	ANTISEPTICS Waste stabilization lagoon microorganism removal efficiency and effluent disinfection with chlorin	ıe
AIR TRANSPORTATION Circadian rhythms in air operations N80-15816	[PB-300631/9] N80-15/86 ARMED PORCES (POREIGN) Concerning individual equipment for fighter pilots	
ATRCRAFT ACCIDENTS	in the Air Force	
Some human factors issues in the development and evaluation of cockpit alerting and warning systems	FRG aircrew Chemical defence assemblies	
[NASA-RP-1055] NSU-13821 AIRCRAFT INSTRUMENTS	ARMED PORCES (UNITED STATES)	
Preliminary investigation of pilot scanning techniques of dial pointing instruments	Serum cholesterol levels in selected Air Porce cadets compared with levels in the West Point	
[NASA-TM-80079] N80-14697 AIRCRAFT LANDING	study A80-20442	
When day is done and shadows fall, we miss the airport most of all visual accommodation and	Philosophy of protection of US aircrews against chemical warfare agents N30-14734	
aircraft flight safety A80-19024	US aircrew chemical defense assemblies N80-14736	
AIRCRAFT NOISE The effect of aircraft noise on the functional	ARTERIES	
state of human operators A80-21039	The effects of hypodynamia and hypokinesia on the arterial bed of pelvic limb muscles in the rabbit [NASA-TM-75984] N80-14673	t
AIRCRAFT PERFORMANCE Handling qualities, workload and heart rate N80-14750	ASTRONAUT PERFORMANCE Psychophysiological monitoring of operator's	
AIRCRAFT PILOTS The effect of age and vitamin provision of pilots	emotional stress in aviation and astronautics A80-20449	
on their night vision characteristics 880-21040	ATHLETES Practical criteria for analyzing the heart	
problems related to medical criteria for the selection of military navigation personnel N80-14679	hemodynamics of young athletes A80-20212	

SUBJECT INDEX BIOMEDICAL DATA

ATTENTION Vigilance and attention		Biochemical indices of stress: Bioc	chemical
rigitance and accention	N80-15811	aspects of the stress response	N80-15812
AUDIOMETRY		Psychostimulants	NOV- 13012
Static acoustic impedance profiles diagnosis	in auditory	BIOCONTROL SYSTEMS	N80-15817
[ASME PAPER 79-WA/BIO-1] AUDITORY PERCEPTION	A80-18643	Interpreting nonlinear systems - The kernel of the eye movement control	third order system
The microwave auditory phenomenon	A80-21024	BIODYNAMICS	A80-20860
The effect of certain extremal fact		Modeling and simulation. Volume 10 -	Proceedings
human auditory function		of the Tenth Annual Pittsburgh Con	ference.
	A80-21038	University of Pittsburgh, Pittsbur	gh, Pa., April
n		25-27, 1979. Part 1 - Biomedical	
В		Measurement of resistive torques in	A80-20855 major human
BACKGROUND NOISE A nonparametric model of detection	of cianals	joints	
observed by a human operator on a the presence of noise		[AD-A071170] Modeling biodynamic effects of wibra [AD-A073819]	N80-14695 tion, fifth year N80-14719
BACTERIA	A80-19452	Model task for the dynamics of an un	
Proton movements in response to a 1	ight-driven	two-legged walker [NASA-TM-75697]	N80-15822
electrogenic pump for sodium ions		BIOBLECTRICITY	
Halobacterium halobium membranes	A80-17686	Relationship among the 55 Hz bioelec	tric rhythm of
Investigation of effects of tempera and electrode design on the perfo	ture, salinity,	the olfactory bulb, the bulb S-rhy respiration	
electrochemical coliform detector		RP-field interactions with biologica	A80-20211
[NASA-TM-80130]	N80-14676	Electrical properties and biophysic	cal mechanisms
Charge separation in synthetic phot	o-reaction	in the second se	A80-21030
centers	V00 4570#	BIOENGINEERING	
[CONF-781048-1] BED REST	N80-15784	Modeling and simulation. Volume 10 - of the Tenth Annual Pittsburgh Con	Proceedings
Exercise response to simulated weig		University of Pittsburgh, Pittsburgh	qh, Pa., April
Total Camiat bassins assessed as	A80-20019	25-27, 1979. Part 1 - Biomedical	, · · · · · · · · · · · · · · · · · · ·
Joint Soviet-American experiment on Experimental results	nypokinesia:	A controlled rate freeze/thaw system	A80-20855
[NASA-TM-76013]	N80-15796	cryopreservation of biological mate	erials
BEHAVIOR		[NASA-CR-162531]	N 80-14675
Influence of hypokinesis on physiol functions in fowl	ogicai	Measurement of resistive torques in a joints	major human
[NASA-TM-75999]	N80-15778	[AD-A071170]	N80-14695
BIBLIOGRAPHIES		Technologies for the handicapped and	the aged
Biological effects of high-voltage fields, an update. Volume 2: Bi	electric	[NASA-TM-80842]	N80-14715
[EPRI-EA-1123-VOL-2]	N80-15801	BIOINSTRUMENTATION Steady magnetic fields in noninvasive	•
BINOCULAR VISION		electromagnetic flowmetry	e
Nonlinear interactions in binocular		· · · · · · · · · · · · · · · · · · ·	A80-21033
BINOCULARS	A80-20859	BIOLOGICAL EFFECTS	
Daytime visual acuity of observers	through a	Hypergravity and estrogen effects on anterior pituitary growth hormone a	avian and prolactin
window with and without binocular	s	levels	and protactin
[AD-A074722] BIOASSAY	N80-15800	Charles of the bessels to the second	A80-20447
Biological screening of complex sam	ples from	State of the knowledge for electromage absorbed dose in man and animals	gnetic
industrial/energy processes		appeared done in man and animals	A80-21019
[PB-300459/5]	N8 0- 15 80 5	Microwave biological effects - An ove	
BIOASTRONAUTICS Study of fungal phenotypes after ex	nosure to space	Microwave cataractogenesis	A 80-21021
flight parameters	posare to space	microwave cataractogenesis	A80-21022
Space motion sickness	A80-17986	Microwave irradiation and the blood-l	brain barrier
opade motion bighteds	A80-20018	Soviet and Eastern European research	A80-21023
A mathematical and experimental sim-		effects of microwave radiation	
hematological response to weightle		Biological offices of class is and	A80-21027
A study of metabolic balance in cre Skylab IV	A80-20020 wmembers of	Biological effects of electric and ma associated with ELF communications	systems
SKILUD IV	A80-20021	Prequency and power windowing in tiss	A80-21029
Amino aciduria in veightlessness		interactions with weak electromagne	
Fluid volumes changes induced by spa		Physiological factors in space operat	A80-21032
BIOCHEMISTRY	A80-20023	Emphasis on space shuttle	700 454
Proton movements in response to a 1:	ight-driven	The interaction of ozone with the hum	N80-14682
electrogenic pump for sodium ions Halobacterium halobium membranes		biological effects of photochem	
	A80-17686	Biological effects of high-voltage el	lectric
The interaction of ozone with the hi	man erythrocyte	fields, an update. Volume 2: Bibl	
biological effects of photoche	N80-14686	[EPRI-EA-1123-VOL-2] BIOLOGICAL BYOLUTION	N80-15801
Synthesis and biological screening !		A mathematical model of the disruption	on of mirror
fluorocarbon hydrocarbon compounds		symmetry in prebiological evolution	1
artificial blood substitutes [NASA-CR-162537]	N80-14689	RTOMPRICAT DATA	A80-20680
Joint Soviet-American experiment on		BIOMBDICAL DATA Scientific biomedical studies during	the flight of
Experimental results		the first Bulgarian cosmonaut	and ranged or
[NASA-TM-76013]	N80-15796	•	A80-19100

A80-19100

SUBJECT INDEX BIONICS

Modeling and simulation. Volume 10 - Proceedings	
Houseling and ormalactors to the transfer	BODY TEMPERATURE
of the Tenth Annual Pittsburgh Conference, University of Pittsburgh, Pittsburgh, Pa., April	Body temperature and heart rate relationships during submaximal bicycle ergometer exercises
25-27, 1979. Part 1 - Biomedical	A80-17728
A80-20855 Study on the neuronal circuits implicated in	Temperature compensation of the metabolism of serotonin in the brain of hibernating mammals
postural tremor and hypokinesia	A80-18082
[NASA-TH-76004] N80-15783	Tolerance to shift work: A chronologic approach N80-15815
BIONICS Modeling and simulation. Volume 10 - Proceedings	BONES
of the Tenth Annual Pittsburgh Conference,	Bone remodeling in centrifuged rats - Histomorphometric study after an 18-day run
University of Pittsburgh, Pittsburgh, Pa., April 25-27, 1979. Part 1 - Biomedical	A80-20450
N80-20855	BRAIN Temperature compensation of the metabolism of
Nonlinear interactions in binocular vision A80-20859	serotonin in the brain of hibernating mammals
Interpreting nonlinear systems - The third order	A80-18082
kernel of the eye movement control system A80-20860	Effect of rhythmic photostimulation on monkeys with hyperkinesis of post-encephalitic genesis
Modeling biodynamic effects of vibration, fifth year	[NASA-TH-75986] N80-14674
[AD-A073819] N80-14719 Electromagnetic fields in biological media. Part	Brain waves and the enhancement of pilot performance N80-14751
The SCAT program, multilayered sphere,	BRAIN CIRCULATION
theory and applications [PB-300904/0] N80-15804	Microwave irradiation and the blood-brain barrier A80-21023
BIOPHYSICS	BRAIN DAMAGE
Spatial filtering and mechanisms of perception in human vision	Motion sickness. I - A theory. II - A clinical study based on surgery of cerebral hemisphere
A80-20858	lesions. III - A clinical study based on surgery
BIOSYNTHESIS Information processes in the evolution of protein	of posterior fossa tumors A80-20452
synthesis	BREATHING APPARATUS An advanced oxygen system for future combat aircraft
Synthesis and biological screening by novel hybrid	N80-14680
fluorocarbon hydrocarbon compounds for use as artificial blood substitutes	•
[NASA-CR-162537] N80-14689	C
Synthesis and biological screening by novel hybrid	CABIN ATMOSPHERES Philosophy of protection of US aircrews against
fluorocarbon hydrocarbon compounds for use as	chemical warfare agents
artificial blood substitutes [NASA-CR-162537] N80-14689	N80-14734 Atmosphere physiological basis for spacecraft
BIVARIATE ANALYSIS	pressure tolerance limits
Confidence regions of planar cardiac vectors A80-19850	N80-15789 Contaminants physiological effects of
BLOOD	spacecraft contaminants
Dialysis system using ion exchange resin membranes permeable to urea molecules	R80-15790
[NASA-CASE-NPO-14101-1] N80-14687	Effect of 1 alpha-hydroxy-cholecalciferol and
Synthesis and biological screening by novel hybrid fluorocarbon hydrocarbon compounds for use as	<pre>varying phosphorous content in the diet on calcium phosphorous metabolism in hypokinetic rats</pre>
artificial blood substitutes	A80-20445
[NASA-CR-162537] N80-14689 Activity of cholinesterases of blood and heart in	CALCIUM METABOLISM A study of metabolic balance in crewmembers of
rats of different sex and age during muscular	
	Skylab IV
loads and hypokinesia	Skylab IV A80-20021 Effect of 1 alpha-hydroxy-cholecalciferol and
loads and hypokinesia [NASA-TM-75951] N80-15781 BLOOD CIRCULATION	A80-20021 Effect of 1 alpha-hydroxy-cholecalciferol and varying phosphorous content in the diet on
loads and hypokinesia [NASA-TM-75951] N80-15781	A80-20021 Effect of 1 alpha-hydroxy-cholecalciferol and
loads and hypokinesia [NBSA-TM-75951] BLOOD CIRCULATION Physiological regulation of oxygen transport to muscles /from results of mathematical analysis of experimental data/	A80-20021 Effect of 1 alpha-hydroxy-cholecalciferol and varying phosphorous content in the diet on calcium phosphorous metabolism in hypokinetic rats A80-20445 Hormonal regulation of calcium and phosphorus
loads and hypokinesia [NASA-TH-75951] BLOOD CIRCULATION Physiological regulation of oxygen transport to muscles /from results of mathematical analysis of experimental data/ Ma0-18081 Modeling of blood flow in vessels of the	A80-20021 Effect of 1 alpha-hydroxy-cholecalciferol and varying phosphorous content in the diet on calcium phosphorous metabolism in hypokinetic rats A80-20445 Hormonal regulation of calcium and phosphorus homeostasis during physical activity A80-20684
loads and hypokinesia [NASA-TM-75951] BLOOD CIRCULATION Physiological regulation of oxygen transport to muscles /from results of mathematical analysis of experimental data/ Modeling of blood flow in vessels of the microcirculation	A80-20021 Effect of 1 alpha-hydroxy-cholecalciferol and varying phosphorous content in the diet on calcium phosphorous metabolism in hypokinetic rats A80-20445 Hormonal regulation of calcium and phosphorus homeostasis during physical activity A80-20684 Mechanism of disorder of plastic processes in
loads and hypokinesia [NASA-TH-75951] BLOOD CIRCULATION Physiological regulation of oxygen transport to muscles /from results of mathematical analysis of experimental data/ Modeling of blood flow in vessels of the microcirculation N80-14685 BLOOD FLOW	A80-20021 Effect of 1 alpha-hydroxy-cholecalciferol and varying phosphorous content in the diet on calcium phosphorous metabolism in hypokinetic rats A80-20445 Hormonal regulation of calcium and phosphorus homeostasis during physical activity A80-20684 Mechanism of disorder of plastic processes in tissue during prolonged hypokinesia [NASA-TM-75955]
loads and hypokinesia [NBSA-TH-75951] BLOOD CIRCULATION Physiological regulation of oxygen transport to muscles /from results of mathematical analysis of experimental data/ Modeling of blood flow in vessels of the microcirculation N80-14685 BLOOD FLOW Steady magnetic fields in noninvasive	A80-20021 Effect of 1 alpha-hydroxy-cholecalciferol and varying phosphorous content in the diet on calcium phosphorous metabolism in hypokinetic rats A80-20445 Hormonal regulation of calcium and phosphorus homeostasis during physical activity Mechanism of disorder of plastic processes in tissue during prolonged hypokinesia [NASA-TM-75955] CAPILLARIES (ANATORY)
loads and hypokinesia [NSA-TH-75951] BLOOD CIRCULATION Physiological regulation of oxygen transport to muscles /from results of mathematical analysis of experimental data/ Modeling of blood flow in vessels of the microcirculation N80-14685 BLOOD PLOW Steady magnetic fields in noninvasive electromagnetic flowmetry A80-21033	A80-20021 Effect of 1 alpha-hydroxy-cholecalciferol and varying phosphorous content in the diet on calcium phosphorous metabolism in hypokinetic rats A80-20445 Hormonal regulation of calcium and phosphorus homeostasis during physical activity A80-20684 Mechanism of disorder of plastic processes in tissue during prolonged hypokinesia [NASA-TM-75955] CAPILLARIES (ANATONY) Modeling of blood flow in vessels of the microcirculation
loads and hypokinesia [NASA-TH-75951] BLOOD CIRCULATION Physiological regulation of oxygen transport to muscles /from results of mathematical analysis of experimental data/ Ma0-18081 Modeling of blood flow in vessels of the microcirculation N80-14685 BLOOD FLOW Steady magnetic fields in noninvasive electromagnetic flowmetry	A80-20021 Effect of 1 alpha-hydroxy-cholecalciferol and varying phosphorous content in the diet on calcium phosphorous metabolism in hypokinetic rats A80-20445 Hormonal regulation of calcium and phosphorus homeostasis during physical activity A80-20684 Mechanism of disorder of plastic processes in tissue during prolonged hypokinesia [NASA-TM-75955] CAPILLARIES (ANATOMY) Modeling of blood flow in vessels of the microcirculation N80-14685 CARBARATES (TRADEMANE)
loads and hypokinesia [NSA-TR-75951] BLOOD CIRCULATION Physiological regulation of oxygen transport to muscles /from results of mathematical analysis of experimental data/ Modeling of blood flow in vessels of the microcirculation N80-14685 BLOOD FLOW Steady magnetic fields in noninvasive electromagnetic flowmetry A80-21033 Modeling of blood flow in vessels of the microcirculation N80-14685	A80-20021 Effect of 1 alpha-hydroxy-cholecalciferol and varying phosphorous content in the diet on calcium phosphorous metabolism in hypokinetic rats A80-20445 Hormonal regulation of calcium and phosphorus homeostasis during physical activity A80-20684 Mechanism of disorder of plastic processes in tissue during prolonged hypokinesia [NASA-TM-75955] CAPILLARIES (ANATORY) Modeling of blood flow in vessels of the microcirculation N80-14685 CARBAHATES (TRADBHAME) Consideration of pyridostigmine as a prophylactic
loads and hypokinesia [NASA-TH-75951] BLOOD CIRCULATION Physiological regulation of oxygen transport to muscles /from results of mathematical analysis of experimental data/ Ma0-18081 Modeling of blood flow in vessels of the microcirculation N80-14685 BLOOD FLOW Steady magnetic fields in noninvasive electromagnetic flowmetry Modeling of blood flow in vessels of the microcirculation	A80-20021 Effect of 1 alpha-hydroxy-cholecalciferol and varying phosphorous content in the diet on calcium phosphorous metabolism in hypokinetic rats A80-20445 Hormonal regulation of calcium and phosphorus homeostasis during physical activity A80-20684 Mechanism of disorder of plastic processes in tissue during prolonged hypokinesia [NASA-TM-75955] CAPILLARIES (ANATOMY) Modeling of blood flow in vessels of the microcirculation N80-14685 CARBARATES (TRADEMANE)
loads and hypokinesia [NSA-TH-75951] BLOOD CIRCULATION Physiological regulation of oxygen transport to muscles /from results of mathematical analysis of experimental data/ Modeling of blood flow in vessels of the microcirculation N80-14685 BLOOD FLOW Steady magnetic fields in noninvasive electromagnetic flowmetry Modeling of blood flow in vessels of the microcirculation N80-21033 Modeling of blood flow in vessels of the microcirculation N80-14685 Effect of prolonged hypokinesia on tissue blood flow [NASA-TM-76005] BLOOD VOLUME	A80-20021 Effect of 1 alpha-hydroxy-cholecalciferol and varying phosphorous content in the diet on calcium phosphorous metabolism in hypokinetic rats A80-20445 Hormonal regulation of calcium and phosphorus homeostasis during physical activity A80-20684 Mechanism of disorder of plastic processes in tissue during prolonged hypokinesia [NASA-TM-75955] CAPILLARIES (ANATOMY) Modeling of blood flow in vessels of the microcirculation N80-14685 CARBAHATES (TRADBHAME) Consideration of pyridostigmine as a prophylactic agent for aircrew N80-14730 CARBOB
loads and hypokinesia [NASA-TH-75951] BLOOD CIRCULATION Physiological regulation of oxygen transport to muscles /from results of mathematical analysis of experimental data/ Ma0-18081 Modeling of blood flow in vessels of the microcirculation N80-14685 BLOOD FLOW Steady magnetic fields in noninvasive electromagnetic flowmetry Modeling of blood flow in vessels of the microcirculation N80-14685 Effect of prolonged hypokinesia on tissue blood flow [NASA-TM-76005]	A80-20021 Effect of 1 alpha-hydroxy-cholecalciferol and varying phosphorous content in the diet on calcium phosphorous metabolism in hypokinetic rats A80-20445 Hormonal regulation of calcium and phosphorus homeostasis during physical activity A80-20684 Mechanism of disorder of plastic processes in tissue during prolonged hypokinesia [NASA-TM-75955] CAPILLARIES (ANATOMY) Modeling of blood flow in vessels of the microcirculation N80-14685 CARBANATES (TRADENANE) Consideration of pyridostigmine as a prophylactic agent for aircrew N80-14730 CARBON Comparison of diurnal fluctuations of dissolved inorganic carbon and algal productivity
loads and hypokinesia [NSA-TH-75951] BLOOD CIRCULATION Physiological regulation of oxygen transport to muscles /from results of mathematical analysis of experimental data/ Modeling of blood flow in vessels of the microcirculation N80-14685 BLOOD FLOW Steady magnetic fields in noninvasive electromagnetic flowmetry A80-21033 Modeling of blood flow in vessels of the microcirculation N80-14685 Effect of prolonged hypokinesia on tissue blood flow [NSA-TH-76005] BLOOD VOLUMB Fluid volumes changes induced by spaceflight A80-20023	A80-20021 Effect of 1 alpha-hydroxy-cholecalciferol and varying phosphorous content in the diet on calcium phosphorous metabolism in hypokinetic rats A80-20445 Hormonal regulation of calcium and phosphorus homeostasis during physical activity A80-20684 Mechanism of disorder of plastic processes in tissue during prolonged hypokinesia [NASA-TM-75955] CAPILLARIES (ANATOMY) Modeling of blood flow in wessels of the microcirculation N80-14685 CARBAMATES (TRADENAME) Consideration of pyridostigmine as a prophylactic agent for aircrew N80-14730 CARBON Comparison of diurnal fluctuations of dissolved inorganic carbon and algal productivity estimates in an oligotrophic and mesotrophic
loads and hypokinesia [NASA-TH-75951] BLOOD CIRCULATION Physiological regulation of oxygen transport to muscles /from results of mathematical analysis of experimental data/ Ma0-18081 Hodeling of blood flow in vessels of the microcirculation N80-14685 BLOOD FLOW Steady magnetic fields in noninvasive electromagnetic flowmetry A80-21033 Modeling of blood flow in vessels of the microcirculation N80-14685 Effect of prolonged hypokinesia on tissue blood flow [NASA-TM-76005] BLOOD VOLUME Fluid volumes changes induced by spaceflight A80-20023 BODY FLUIDS Pluid volumes changes induced by spaceflight A80-20023	A80-20021 Effect of 1 alpha-hydroxy-cholecalciferol and varying phosphorous content in the diet on calcium phosphorous metabolism in hypokinetic rats A80-20445 Hormonal regulation of calcium and phosphorus homeostasis during physical activity Mechanism of disorder of plastic processes in tissue during prolonged hypokinesia [NASA-TH-75955] CAPILLARIES (ANNATOMY) Modeling of blood flow in vessels of the microcirculation N80-14685 CARBANATES (TRADENANE) Consideration of pyridostigmine as a prophylactic agent for aircrew N80-14730 CARBON Comparison of diurnal fluctuations of dissolved inorganic carbon and algal productivity estimates in an oligotrophic and mesotrophic freshwater environment [PB-301201/0]
loads and hypokinesia [NSA-TR-75951] BLOOD CIRCULATION Physiological regulation of oxygen transport to muscles /from results of mathematical analysis of experimental data/ Modeling of blood flow in vessels of the microcirculation N80-14685 BLOOD FLOW Steady magnetic fields in noninvasive electromagnetic flowmetry A80-21033 Modeling of blood flow in vessels of the microcirculation N80-14685 Effect of prolonged hypokinesia on tissue blood flow [NASA-TM-76005] BLOOD VOLUMB Fluid volumes changes induced by spaceflight A80-20023 BODY FLUIDS Fluid volumes changes induced by spaceflight Changes of some blood indices and myocardial	A80-20021 Effect of 1 alpha-hydroxy-cholecalciferol and varying phosphorous content in the diet on calcium phosphorous metabolism in hypokinetic rats A80-20445 Hormonal regulation of calcium and phosphorus homeostasis during physical activity A80-20684 Mechanism of disorder of plastic processes in tissue during prolonged hypokinesia [NASA-TM-75955] CAPILLARIES (ANATOMY) Modeling of blood flow in vessels of the microcirculation N80-14685 CARBAMATES (TRADENAME) Consideration of pyridostigmine as a prophylactic agent for aircrew N80-14730 CARBON Comparison of diurnal fluctuations of dissolved inorganic carbon and algal productivity estimates in an oligotrophic and mesotrophic freshwater environment [PB-301201/0] CARBON DIOXIDE REMOVAL
loads and hypokinesia [NASA-TH-75951] BLOOD CIRCULATION Physiological regulation of oxygen transport to muscles /from results of mathematical analysis of experimental data/ M80-18081 Hodeling of blood flow in vessels of the microcirculation N80-14685 BLOOD FLOW Steady magnetic fields in noninvasive electromagnetic flowmetry A80-21033 Modeling of blood flow in vessels of the microcirculation N80-14685 Effect of prolonged hypokinesia on tissue blood flow [NASA-TM-76005] N80-14688 BLOOD VOLUME Fluid volumes changes induced by spaceflight A80-20023 BODY FLUIDS Fluid volumes changes induced by spaceflight A80-20023 Changes of some blood indices and myocardial electrolyte content during hypokinesia [NASA-TM-75954]	A80-20021 Effect of 1 alpha-hydroxy-cholecalciferol and varying phosphorous content in the diet on calcium phosphorous metabolism in hypokinetic rats A80-20445 Hormonal regulation of calcium and phosphorus homeostasis during physical activity Mechanism of disorder of plastic processes in tissue during prolonged hypokinesia [NASA-TM-75955] CAPILLARIES (ANNTOMY) Modeling of blood flow in vessels of the microcirculation N80-14685 CARBANATES (TRADENAME) Consideration of pyridostigmine as a prophylactic agent for aircrew N80-14730 CARBON Comparison of diurnal fluctuations of dissolved inorganic carbon and algal productivity estimates in an oligotrophic and mesotrophic freshwater environment [PB-301201/0] CARBON DIOXIDE REMOVAL Regenerative CO2 removal for PLSS application [NASA-CR-160449]
loads and hypokinesia [NSA-TH-75951] BLOOD CIRCULATION Physiological regulation of oxygen transport to muscles /from results of mathematical analysis of experimental data/ Modeling of blood flow in vessels of the microcirculation N80-14685 BLOOD FLOW Steady magnetic fields in noninvasive electromagnetic flowmetry A80-21033 Modeling of blood flow in vessels of the microcirculation N80-14685 Effect of prolonged hypokinesia on tissue blood flow [NASA-TH-76005] BLOOD VOLUME Fluid volumes changes induced by spaceflight A80-20023 BODY FLUIDS Fluid volumes changes induced by spaceflight A80-20023 Changes of some blood indices and myocardial electrolyte content during hypokinesia [NASA-TH-75954] BODY SIZE (BIOLOGY)	A80-20021 Effect of 1 alpha-hydroxy-cholecalciferol and varying phosphorous content in the diet on calcium phosphorous metabolism in hypokinetic rats A80-20445 Hormonal regulation of calcium and phosphorus homeostasis during physical activity A80-20684 Mechanism of disorder of plastic processes in tissue during prolonged hypokinesia [NASA-TM-75955] CAPILLARIES (ANATOMY) Modeling of blood flow in vessels of the microcirculation N80-14685 CARBAHATES (TRADRHAME) Consideration of pyridostigmine as a prophylactic agent for aircrew N80-14730 CARBON Comparison of diurnal fluctuations of dissolved inorganic carbon and algal productivity estimates in an oligotrophic and mesotrophic freshwater environment [PB-30120170] [PB-30120170] CARBON DIOXIDE REMOVAL Regenerative CO2 removal for PLSS application [NASA-CR-160419] CAPULAC VENTRICLES
loads and hypokinesia [NASA-TH-75951] BLOOD CIRCULATION Physiological regulation of oxygen transport to muscles /from results of mathematical analysis of experimental data/ M80-18081 Hodeling of blood flow in vessels of the microcirculation N80-14685 BLOOD FLOW Steady magnetic fields in noninvasive electromagnetic flowmetry A80-21033 Modeling of blood flow in vessels of the microcirculation N80-14685 Effect of prolonged hypokinesia on tissue blood flow [NASA-TM-76005] N80-14688 BLOOD VOLUME Fluid volumes changes induced by spaceflight A80-20023 BODY FLUIDS Fluid volumes changes induced by spaceflight A80-20023 Changes of some blood indices and myocardial electrolyte content during hypokinesia [NASA-TM-75954]	A80-20021 Effect of 1 alpha-hydroxy-cholecalciferol and varying phosphorous content in the diet on calcium phosphorous metabolism in hypokinetic rats A80-20445 Hormonal regulation of calcium and phosphorus homeostasis during physical activity Mechanism of disorder of plastic processes in tissue during prolonged hypokinesia [NASA-TM-75955] CAPILLARIES (ANNTOMY) Modeling of blood flow in vessels of the microcirculation N80-14685 CARBANATES (TRADENAME) Consideration of pyridostigmine as a prophylactic agent for aircrew N80-14730 CARBON Comparison of diurnal fluctuations of dissolved inorganic carbon and algal productivity estimates in an oligotrophic and mesotrophic freshwater environment [PB-301201/0] CARBON DIOXIDE REMOVAL Regenerative CO2 removal for PLSS application [NASA-CR-160449]

A80-18975

SUBJECT INDEX COMPUTERIZED SIMULATION

CARDIOLOGY		Therapy on nerve agent poisoning	
Confidence regions of planar cardiac vector:	:s 10-19850	Activity of cholinesterases of blood and	N80-14732
Practical criteria for analyzing the heart	10-17030	rats of different sex and age during many	neart in uscular
hemodynamics of young athletes		loads and hypokinesia	
	10-20212	[NASA-TH-75951]	N80-15781
CARDIOVASCULAR SYSTEM Joint Soviet-American experiment on hypoking		RONOLOGY Circadian and circannual rhythms in heal	the adults
Experimental results	e31d.	cricadian and cricannual raycams in hear	N80-15807
	10-15796 CI	RCADIAN RHYTHES	
CATARACTS		Sleep, Wakefulness and Circadian Rhythm	
Microwave cataractogenesis	0-21022	[AG ARD-LS-105]	N80-15806
CELLS (BIOLOGY)	0-21022	Circadian and circannual rhythms in heal	N80-15807
Review of cell aging in Drosophila and mouse	e	Circadian rhythms of human performance as	
8A	10-17741	resistance: Operational aspects	
Study of fungal phenotypes after exposure to	o space	Class share assertanting warms and and	N80-15808
flight parameters	0-17986	Sleep stage organization: Neuro endocri	ne relations N80-15809
Effect of hypoxia on the contractile activi-		Tolerance to shift work: A chronologic a	
smooth muscle cells in the thoracic duct	_	•	N80-15815
	0-20683	Circadian rhythms in air operations	
Cellular effects: Millimeter waves and Rama:	n	. Wanagamant of immamles meet and catingto	ุ พ80-15816
spectra - Report of a panel discussion	0-21031	Management of irregular rest and activity	y N80-15819
CENTRIFUGING STRESS		OSED ECOLOGICAL SYSTEMS	NOO- 13013
Bone remodeling in centrifuged rats -		Study of fungal phenotypes after exposure	e to space
Histomorphometric study after an 18-day r		flight parameters	
CEREBRAL CORTEX	0-20450	Dislociant anatom 6 and 3 and 116 and 116	A80-17986
Visual cortical neurons - Are bars or gratis	nas the	Biological systems for human life support of the research in the USSR	: KeAleA
optimal stimuli	nys the	[NASA-TM-76018]	N80-14717
	0-17711 CO	CKPITS	
Motion sickness. I - A theory. II - A clinic		Heat stress exposure of aerial spray pilo	ots
study based on surgery of cerebral hemisph		ANTERIN DATABALAN	A80-20451
lesions. III - A clinical study based on : of posterior fossa tumors	surgery CO	GHITIVE PSYCHOLOGY Combined effects of broadband noise and o	nomplew.
	0-20452	waveform vibration on cognitive perform	
CHEMICAL ENERGY		to to organize forms	A80-20441
Energy uptake in the first step of visual ex		LD ACCLINATIZATION	
	0-20387	Temperature compensation of the metabolis	
CHEMICAL WARPARE Maintenance of air operations while under a	ttack	serotonin in the brain of hibernating m	nammals 180-18082
with chemical agents protective cloth		LD TOLERANCE	NOU- 10062
	0-14728	Thermal environment physiological bas	sis for
Consideration of pyridostigmine as a prophy:	lactic	temperature tolerance limits	
agent for aircrew	0.44730		N 80-15791
Approaches to CW agent area detection system		LOR VISION Theoretical problems in modeling color gr	
airfields	ms lor	detection in human vision	acing
	0-14733	· · · · · · · · · · · · · · · · · · ·	A80-20861
Philosophy of protection of US aircrews again	inst CO	HBAT	
chemical warfare agents	0.48720	Aircrew performance research opportunitie	
Concerning individual equipment for fighter	0-14734	the Air Combat Maneuvering Range (ACMR)	N80-14753
in the Air Force		HPLEX SYSTEMS	14755
	0-14735	Mathematical concepts for modeling human	behavior
US aircrew chemical defense assemblies		in complex man-machine systems	
	0-14736	WDGBDD 4818444	A80-19025
FRG aircrew chemical defence assemblies	0-14737	MPUTER GRAPHICS Real-time simulation of PLIR and LLLTV Sy	ctone for
Integration of protection against chemical		aircrew training	Stems LOI
agents with aircrew personal equipment			A80-20899
	0-14738	Special session on vision	
CHLORINATION	1 00	[LBL-9160]	N80-15802
Waste stabilization lagcon microorganism remefficiency and effluent disinfection with		MPUTER PROGRAMS Modeling biodynamic effects of vibration,	fifth was-
	0-15786	[AD-A073819]	N80-14719
CHLOROPHYLLS		Flectromagnetic fields in biological medi	
Charge separation in synthetic photo-reaction	on	The SCAT program, multilayered sphere	re,
centers	0 1570#	theory and applications	200 4500
[CONF-781048-1] N80	0-15784 CO	[PB-300904/0] MPUTERIZED SIMULATION	N80-15804
Serum cholesterol levels in selected Air For		A mathematical and experimental simulation	n of the
cadets compared with levels in the West Po		hematological response to weightlessnes	
study			A80-20020
	0-20442	Modeling and simulation. Volume 10 - Proc	
CHOLINERGICS Therapy on nerve agent poisoning		of the Tenth Annual Pittsburgh Conferent University of Pittsburgh, Pittsburgh, P	
	0-14732	25-27, 1979. Part 1 - Biomedical	a., whili
CHOLINESTERASE	· · · - 	J., Idle , Dlomedical	A80-20855
The effects of acute and chronic low dose en	xposure	Time simulation of an air surveillance ta	
to anticholinesterases	0 10720	varying amounts of radar information	
	0-14729 tes on	[AD-A074866]	N80-14722
The effect of locally applied organophosphat miosis and acetylcholinesterase adaptation		Motor Vehicle Manufacturers Association (Two-Dimensional Crash Victim Simulation	
chronic treatment	-	system: Self-study quide	. Jucollul
	0-14731		N80-14723

CONCORDE AIRCRAFT SUBJECT INDEX

Motor Vehicle Manufacturers Association	(ARVE)	DISPLAY DEVICES	
Two-Dimensional Crash Victim Simulatio	n tutorial	The effect of character size on the legibility	of
system: Audio-visual program	700 AUTON	numeric displays during vertical whole-body	
[PB-299257/6]	N80-14724	vibration	020
MVMA Two-Dimensional Crash Victim Simula version 4, volume 1	tton,	A80-18 Real-time simulation of FLIR and LLLTV Systems	
[PB-299305/3]	N80-14725	aircrew training	LOL
MVMA Two-Dimensional Crash Victim Simula		A80-20	899
version 4, volume 2	·	Effect of peripherally presented visual signals	on
[PB-299306/1]	N80-14726	pilot performance during flight simulation	
MVMA Two-Dimensional Crash Victim Simula	tion,	[AD-A073604] N80-14	703
version 4, volume 3 [PB-299307/9]	N80-14727	DIURNAL VARIATIONS Comparison of diurnal fluctuations of dissolved	
CONCORDE AIRCRAFT	NOU-14727	inorganic carbon and algal productivity	
Supersonic aerial transport: Medical an	ıđ	estimates in an oligotrophic and mesotrophic	
physiological aspects Concorde air		freshwater environment	
	N80-14683	[PB-301201/0] N80-15	785
CONFERENCES		DOSINETERS	
Modeling and simulation. Volume 10 - Pro of the Tenth Annual Pittsburgh Confere		Electromagnetic dosimetry for models of humans animals - A review of theoretical and numeric	
University of Pittsburgh, Pittsburgh,		techniques	11
25-27, 1979. Part 1 - Biomedical	iu., aptii	A80-21	020
· · · · · · · · · · · · · · · · ·	A80-20955	DROSOPHILA	
CONFIDENCE LIMITS		Review of cell aging in Drosophila and mouse	
Confidence regions of planar cardiac vec		A80-17	741
CONGRESCIONAL DEBORMS	A80-19850	_	
CONGRESSIONAL REPORTS Technologies for the handicapped and the	, agod	E	
[NASA-TM-80842]	N80-14715	BARDRUMS	
CORRELATION	100 14713	Eustachian tube function in selection of airmen	
Assessment correlates of workload and pe	erformance	180-20	
	N80-14758	ECHOCARDIOGRAPHY	
CRITERIA		Left ventricular relaxation and filling pattern	
Problems related to medical criteria for		different forms of left ventricular hypertrop	'nУ
selection of military navigation perso	nnei N80-14679	- An echocardiographic study	075
CRYOGENICS	NOU-140/9	A80-18	913
A controlled rate freeze/thaw system for		The European approach to the selection and	
cryopreservation of biological materia		training of SL payload specialists	
[NASA-CR-162531]	N80-14675	N80-14	5 81
CYTOLOGY		EFFERENT BERVOUS SYSTEMS	
Proton movements in response to a light-	driven	RNA content in motor and sensory neurons and	
electrogenic pump for sodium ions in Halobacterium halobium membranes		surrounding neuroglia of mouse spin ^a l ^C or ^d un conditions of hypodynamia and following	1er
nalobacterium nalobium membranes	A80-17686	normalization	
		[NASA-TM-75983] N80-14	672
D		RPPLUBNTS	
		Biological screening of complex samples from	
DECISION HAKING		industrial/energy processes	20.5
Are important weights sensitive to the r		industrial/energy processes [PB-300459/5] N80-15	305
Are important weights sensitive to the raternatives in multiattribute utility	measurement	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIELDS	305
Are important weights sensitive to the r		industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIELDS Biological effects of high-voltage electric	305
Are important weights sensitive to the r alternatives in multiattribute utility [AD-A073366]	measurement N80-14701	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIELDS	
Are important weights sensitive to the ralternatives in multiattribute utility [AD-A073366] DECISION THEORY Subjective versus statistical importance A criterion validation	measurement N80-14701 weights.	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 ELECTRIC POWER TRANSMISSION	
Are important weights sensitive to the ralternatives in multiattribute utility [AD-A073366] DECISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367]	measurement N80-14701	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIELDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [PPRI-EA-1123-VOL-2] N80-15 ELECTRIC POWER TRANSMISSION Biological effects of high-voltage electric	
Are important weights sensitive to the ralternatives in multiattribute utility [AD-A073366] DRCISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367] DROXYRIBONUCLEIC ACID	measurement N80-14701 weights. N80-14702	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [FPRI-EA-1123-VOL-2] N80-15 ELECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography	80 1
Are important weights sensitive to the ralternatives in multiattribute utility [AD-A073366] DECISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367] DEOLYRIBONUCLEIC ACID The informational structure of DNA, RNA,	measurement N80-14701 weights. N80-14702	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIRLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-BA-1123-VOL-2] BLECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15	80 1
Are important weights sensitive to the ralternatives in multiattribute utility [AD-A073366] DRCISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367] DROXYRIBONUCLEIC ACID	measurement N80-14701 weights. N80-14702 and amino	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [PPRI-EA-1123-VOL-2] N80-15 BLECTRIC POWER TRANSHISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [PPRI-EA-1123-VOL-2] N80-15 BLECTRIC STIMULI	80 1
Are important weights sensitive to the ralternatives in multiattribute utility [AD-A073366] DECISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367] DEOLYRIBONUCLEIC ACID The informational structure of DNA, RNA,	measurement N80-14701 weights. N80-14702 and amino A80-20856	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIRLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-BA-1123-VOL-2] BLECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15	80 1
Are important weights sensitive to the ralternatives in multiattribute utility [AD-A073366] DRCISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367] DROIYRIBONUCLEIC ACID The informational structure of DNA, RNA, acid sequences	measurement N80-14701 weights. N80-14702 and amino A80-20856 f protein	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli	80 1 80 1
Are important weights sensitive to the ralternatives in multiattribute utility [AD-A073366] DECISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367] DECISION TO ACT	measurement N80-14701 weights. N80-14702 and amino A80-20856	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TM-75941] N80-15	80 1 80 1
Are important weights sensitive to the raternatives in multiattribute utility [AD-A073366] DRCISION THRORY Subjective versus statistical importance A criterion validation [AD-A073367] DROYYRIBONUCLEIC ACID The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis DESIGN ANALYSIS	measurement N80-14701 weights. N80-14702 and amino A80-20856 of protein A80-20857	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] Blological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TM-75941] BLECTROCARDIOGRAPHY	80 1 80 1 780
Are important weights sensitive to the ralternatives in multiattribute utility [AD-A073366] DECISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367] DEOXYRIBONUCLEIC ACID The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis DESIGH ANALYSIS Investigation of effects of temperature,	measurement N80-14701 weights. N80-14702 and amino A80-20856 of protein A80-20857 salinity,	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [PPRI-EA-1123-V0L-2] N80-15 BLECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-V0L-2] N80-15 BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TM-75941] N80-15 BLECTROCARDIOGRAPHY Polycardiographic research with a single-channe	80 1 80 1 780
Are important weights sensitive to the ralternatives in multiattribute utility [AD-A073366] DECISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367] DEOIXRIBONUCLEIC ACID The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis DESIGN ANALYSIS Investigation of effects of temperature, and electrode design on the performance.	measurement N80-14701 weights. N80-14702 and amino A80-20856 of protein A80-20857 salinity,	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TM-75941] N80-15 BLECTROCARDIOGRAPHY Polycardiographic research with a single-channe electrocardiograph	80 1 80 1 780 1
Are important weights sensitive to the raternatives in multiattribute utility [AD-A073366] DRCISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367] DROYYRIBONUCLEIC ACID The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis DESIGN ANALYSIS Investigation of effects of temperature, and electrode design on the performance electrochemical coliform detector	measurement N80-14701 weights. N80-14702 and amino A80-20856 of protein A80-20857 salinity,	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] Bloogical effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TM-75941] N80-15 BLECTROCARDIOGRAPHY Polycardiographic research with a single-channe electrocardiograph	80 1 80 1 780 1
Are important weights sensitive to the ralternatives in multiattribute utility [AD-A073366] DECISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367] DEOIXRIBONUCLEIC ACID The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis DESIGN ANALYSIS Investigation of effects of temperature, and electrode design on the performance.	measurement N80-14701 weights. N80-14702 and amino A80-20856 ff protein A80-20857 salinity,	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [PRI-EA-1123-V0L-2] N80-15 Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-V0L-2] Bibliography [EPRI-EA-1123-V0L-2] BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TM-75941] N80-15 BLECTROCARDIOGRAPHY Polycardiographic research with a single-channe electrocardiograph A80-20 ELECTROMAGNETIC ABSORPTION	80 1 80 1 780 1
Are important weights sensitive to the ralternatives in multiattribute utility [AD-A073366] DECISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367] DEOXYRIBOHUCLEIC ACID The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis DESIGN ANALYSIS Investigation of effects of temperature, and electrode design on the performance electrochemical coliform detector [NASA-TH-80130]	measurement N80-14701 weights. N80-14702 and amino A80-20856 ff protein A80-20857 salinity, e of an	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] BLECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TH-75941] N80-15 BLECTROCARDIOGRAPHY Polycardiographic research with a single-channe electrocardiograph A80-20 ELECTROMAGNETIC ABSORPTION State of the knowledge for electromagnetic absorbed dose in man and animals	80 1 80 1 780 1 213
Are important weights sensitive to the ralternatives in multiattribute utility [AD-A073366] DECISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367] DEOXYRIBONUCLEIC ACID The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis DESIGN ANALYSIS Investigation of effects of temperature, and electrochemical coliform detector [NASA-TM-80130] DIAGNOSIS Static acoustic impedance profiles in audiagnosis	measurement N80-14701 weights. N80-14702 and amino A80-20856 of protein A80-20857 salinity, se of an N80-14676	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIRIDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [PRI-BA-1123-VOL-2] N80-15 BLECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TM-75941] N80-15 BLECTROCARDIOGRAPHY Polycardiographic research with a single-channe electrocardiograph A80-20 BLECTROHAGNETIC ABSORPTION State of the knowledge for electromagnetic absorbed dose in man and animals	80 1 80 1 780 1 213
Are important weights sensitive to the ralternatives in multiattribute utility [AD-AO73366] DECISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367] DEOIXRIBONUCLEIC ACID The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis DESIGN ANALYSIS Investigation of effects of temperature, and electrode design on the performance electrochemical coliform detector [NASA-TH-80130] DIAGNOSIS Static acoustic impedance profiles in audiagnosis [ASME PAPER 79-WA/BIO-1]	measurement N80-14701 weights. N80-14702 and amino A80-20856 ff protein A80-20857 salinity, e of an	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TM-75941] N80-15 BLECTROCARDIOGRAPHY Polycardiographic research with a single-channe electrocardiograph A80-20 BLECTROHAGNETIC ABSORPTION State of the knowledge for electromagnetic absorbed dose in man and animals A80-21 Electromagnetic dosimetry for models of humans	780 1 213
Are important weights sensitive to the raternatives in multiattribute utility [AD-AO73366] DRCISION THEORY Subjective versus statistical importance A criterion validation [AD-AO73367] DROYYRIBONUCLEIC ACID The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis DRSIGN ANALYSIS Investigation of effects of temperature, and electrode design on the performance electrochemical coliform detector [NASA-TH-80130] DIAGNOSIS Static acoustic impedance profiles in audiagnosis [ASME PAPER 79-WA/BIO-1] DIALYSIS	measurement N80-14701 weights. N80-14702 and amino A80-20856 if protein A80-20857 salinity, e of an N80-14676 ditory A80-18643	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] BLECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TH-75941] N80-15 BLECTROCARDIOGRAPHY Polycardiographic research with a single-channe electrocardiograph A80-20 ELECTROMAGNETIC ABSORPTION State of the knowledge for electromagnetic absorbed dose in man and animals A80-21 Electromagnetic dosimetry for models of humans animals - A review of theoretical and numeric	780 1 213
Are important weights sensitive to the ralternatives in multiattribute utility [AD-AO73366] DECISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367] DEOXYRIBONUCLEIC ACID The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis DESIGN ANALYSIS Investigation of effects of temperature, and electrode design on the performance electrochemical coliform detector [NASA-TM-80130] DIAENOSIS Static acoustic impedance profiles in audiagnosis [ASME PAPER 79-WA/BIO-1] DIALYSIS Dialysis system using ion exchange results and exchange results and exchange results are supposed to the performance of the performance of the performance electrochemical coliform detector [NASA-TM-80130] DIALYSIS Dialysis system using ion exchange results are supposed to the performance of the p	measurement N80-14701 weights. N80-14702 and amino A80-20856 if protein A80-20857 salinity, e of an N80-14676 ditory A80-18643	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [PRI-BA-1123-VOL-2] N80-15 BLECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TM-75941] N80-15 BLECTROCARDIOGRAPHY Polycardiographic research with a single-channe electrocardiograph A80-20 BLECTROHAGNETIC ABSORPTION State of the knowledge for electromagnetic absorbed dose in man and animals A80-21 Electromagnetic dosimetry for models of humans animals - A review of theoretical and numeric techniques	801 780 1 213
Are important weights sensitive to the ralternatives in multiattribute utility [AD-AO73366] DECISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367] DEOIYRIBONUCLEIC ACID The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis DESIGN ANALYSIS Investigation of effects of temperature, and electrode design on the performance electrochemical coliform detector [NASA-TH-80130] DIAGNOSIS Static acoustic impedance profiles in audiagnosis [ASME PAPER 79-WA/BIO-1] DIALYSIS Dialysis system using ion exchange remembrances permeable to urea molecules	measurement N80-14701 weights. N80-14702 and amino A80-20856 ff protein A80-20857 salinity, ce of an N80-14676 dittory A80-18643	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TM-75941] N80-15 BLECTROCARDIOGRAPHY Polycardiographic research with a single-channe electrocardiograph A80-20 BLECTROHAGNETIC ABSORPTION State of the knowledge for electromagnetic absorbed dose in man and animals A80-21 Electromagnetic dosimetry for models of humans animals - A review of theoretical and numeric techniques	801 780 1 213
Are important weights sensitive to the ralternatives in multiattribute utility [AD-AO73366] DECISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367] DEOXYRIBONUCLEIC ACID The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis DESIGN ANALYSIS Investigation of effects of temperature, and electrode design on the performance electrochemical coliform detector [NASA-TM-80130] DIAENOSIS Static acoustic impedance profiles in audiagnosis [ASME PAPER 79-WA/BIO-1] DIALYSIS Dialysis system using ion exchange results and exchange results and exchange results are supposed to the performance of the performance of the performance electrochemical coliform detector [NASA-TM-80130] DIALYSIS Dialysis system using ion exchange results are supposed to the performance of the p	measurement N80-14701 weights. N80-14702 and amino A80-20856 if protein A80-20857 salinity, e of an N80-14676 ditory A80-18643	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [PRI-BA-1123-VOL-2] N80-15 BLECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TM-75941] N80-15 BLECTROCARDIOGRAPHY Polycardiographic research with a single-channe electrocardiograph A80-20 BLECTROHAGNETIC ABSORPTION State of the knowledge for electromagnetic absorbed dose in man and animals A80-21 Electromagnetic dosimetry for models of humans animals - A review of theoretical and numeric techniques	801 780 1 213
Are important weights sensitive to the ralternatives in multiattribute utility [AD-AO73366] DECISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367] DEOIXRIBONUCLEIC ACID The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis DESIGH ANALYSIS Investigation of effects of temperature, and electrode design on the performance electrochemical coliform detector [NASA-TH-80130] DIAGHOSIS Static acoustic impedance profiles in audiagnosis [ASME PAPER 79-WA/BIO-1] DIALYSIS Dialysis system using ion exchanger membranes permeable to urea molecules [NASA-CASE-NPO-14101-1] DIETS Effect of 1 alpha-hydroxy-cholecalcifero	weights. N80-14702 and amino A80-20856 ff protein A80-20857 salinity, cof an N80-14676 dittory A80-18643 cesin N80-14687	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TM-75941] N80-15 BLECTROCARDIOGRAPHY Polycardiographic research with a single-channe electrocardiograph A80-20 BLECTROHAGNETIC ABSORPTION State of the knowledge for electromagnetic absorbed dose in man and animals A80-21 Electromagnetic dosimetry for models of humans animals - A review of theoretical and numeric techniques A80-21 ELECTROHAGNETIC FIELDS Occupational exposure to radio-frequency electromagnetic fields	801 780 1 213 019 and al
Are important weights sensitive to the raternatives in multiattribute utility [AD-AO73366] DRCISION THEORY Subjective versus statistical importance A criterion validation [AD-AO73367] DROYYRIBONUCLEIC ACID The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis DRSIGN ANALYSIS Investigation of effects of temperature, and electrode design on the performance electrochemical coliform detector [NASA-TH-80130] DIAGNOSIS Static acoustic impedance profiles in audiagnosis [ASME PAPER 79-WA/BIO-1] DIALYSIS Dialysis system using ion exchange remembranes permeable to urea molecules [NASA-CASE-NPO-14101-1] DIETS Effect of 1 alpha-hydroxy-cholecalcifero varying phosphorous content in the die	measurement N80-14701 weights. N80-14702 and amino A80-20856 of protein A80-20857 salinity, se of an N80-14676 dditory A80-18643 resin N80-14687	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] BLECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TH-75941] N80-15 BLECTROCARDIOGRAPHY Polycardiographic research with a single-channe electrocardiograph A80-20 ELECTROMAGNETIC ABSORPTION State of the knowledge for electromagnetic absorbed dose in man and animals A80-21 Electromagnetic dosimetry for models of humans animals - A review of theoretical and numeric techniques A80-21 ELECTROMAGNETIC FIELDS Occupational exposure to radio-frequency electromagnetic fields	801 780 1 213 019 and al
Are important weights sensitive to the ralternatives in multiattribute utility [AD-AO73366] DECISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367] DEOIXRIBONUCLEIC ACID The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis DESIGH ANALYSIS Investigation of effects of temperature, and electrode design on the performance electrochemical coliform detector [NASA-TH-80130] DIAGHOSIS Static acoustic impedance profiles in audiagnosis [ASME PAPER 79-WA/BIO-1] DIALYSIS Dialysis system using ion exchanger membranes permeable to urea molecules [NASA-CASE-NPO-14101-1] DIETS Effect of 1 alpha-hydroxy-cholecalcifero	measurement N80-14701 weights. N80-14702 and amino A80-20856 of protein A80-20857 salinity, se of an N80-14676 dditory A80-18643 sesin N80-14687 old and skinetic rats	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [PPRI-PA-1123-VOL-2] N80-15 ELECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 ELECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TM-75941] N80-15 ELECTROCARDIOGRAPHY Polycardiographic research with a single-channe electrocardiograph ELECTROMAGNETIC ABSORPTION State of the knowledge for electromagnetic absorbed dose in man and animals A80-21 Electromagnetic dosimetry for models of humans animals - A review of theoretical and numeric techniques A80-21 ELECTROMAGNETIC FIELDS Occupational exposure to radio-frequency electromagnetic fields A80-21 Electromagnetic fields in biological media. Pa	801 780 1 213 019 and al
Are important weights sensitive to the ralternatives in multiattribute utility [AD-AO73366] DECISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367] DEOIXTRIBONUCLEIC ACID The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis DESIGH ANALYSIS Investigation of effects of temperature, and electrode design on the performance electrochemical coliform detector [NASA-TH-80130] DIAGHOSIS Static acoustic impedance profiles in audiagnosis [ASME PAPER 79-WA/BIO-1] DIALYSIS Dialysis system using ion exchanger membranes permeable to urea molecules [NASA-CASE-NPO-14101-1] DIETS Effect of 1 alpha-hydroxy-cholecalcifero varying phosphorous content in the die calcium phosphorous metabolism in hypo	measurement N80-14701 weights. N80-14702 and amino A80-20856 of protein A80-20857 salinity, se of an N80-14676 dditory A80-18643 resin N80-14687 old and	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIRIDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TM-75941] N80-15 BLECTROCARDIOGRAPHY Polycardiographic research with a single-channe electrocardiograph A80-20 BLECTROHAGNETIC ABSORPTION State of the knowledge for electromagnetic absorbed dose in man and animals A80-21 Electromagnetic dosimetry for models of humans animals - A review of theoretical and numeric techniques A80-21 ELECTROHAGNETIC FIELDS Occupational exposure to radio-frequency electromagnetic fields in biological media. Pa 2: The SCAT program, multilayered sphere,	801 780 1 213 019 and al
Are important weights sensitive to the raternatives in multiattribute utility [AD-AO73366] DRCISION THEORY Subjective versus statistical importance A criterion validation [AD-AO73367] DROYYRIBONUCLEIC ACID The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis DRSIGN ANALYSIS Investigation of effects of temperature, and electrode design on the performance electrochemical coliform detector [NASA-TH-80130] DIAGNOSIS Static acoustic impedance profiles in audiagnosis [ASME PAPER 79-WA/BIO-1] DIALYSIS Dialysis system using ion exchange remembranes permeable to urea molecules [NASA-CASE-NPO-14101-1] DIETS Effect of 1 alpha-hydroxy-cholecalcifero varying phosphorous content in the die calcium phosphorous metabolism in hypo	weights. N80-14702 and amino A80-20856 of protein A80-20857 salinity, se of an N80-14676 ditory A80-18643 sesin N80-14687 ol and okinetic rats A80-20445	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] BLECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TH-75941] N80-15 BLECTROCARDIOGRAPHY Polycardiographic research with a single-channe electrocardiograph A80-20 ELECTROMAGNETIC ABSORPTION State of the knowledge for electromagnetic absorbed dose in man and animals A80-21 Electromagnetic dosimetry for models of humans animals - A review of theoretical and numeric techniques A80-21 ELECTROMAGNETIC FIELDS Occupational exposure to radio-frequency electromagnetic fields in biological media. Pa 2: The SCAT program, multilayered sphere, theory and applications	801 780 1 213 019 and al 020
Are important weights sensitive to the ralternatives in multiattribute utility [AD-AO73366] DECISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367] DEOIXTRIBONUCLEIC ACID The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis DESIGH ANALYSIS Investigation of effects of temperature, and electrode design on the performance electrochemical coliform detector [NASA-TH-80130] DIAGHOSIS Static acoustic impedance profiles in audiagnosis [ASME PAPER 79-WA/BIO-1] DIALYSIS Dialysis system using ion exchanger membranes permeable to urea molecules [NASA-CASE-NPO-14101-1] DIETS Effect of 1 alpha-hydroxy-cholecalcifero varying phosphorous content in the die calcium phosphorous metabolism in hypo	weights. N80-14702 and amino A80-20856 of protein A80-20857 salinity, se of an N80-14676 ditory A80-18643 sesin N80-14687 ol and okinetic rats A80-20445	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] BLECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TH-75941] N80-15 BLECTROCARDIOGRAPHY Polycardiographic research with a single-channe electrocardiograph A80-20 ELECTROMAGNETIC ABSORPTION State of the knowledge for electromagnetic absorbed dose in man and animals A80-21 Electromagnetic dosimetry for models of humans animals - A review of theoretical and numeric techniques A80-21 ELECTROMAGNETIC FIELDS Occupational exposure to radio-frequency electromagnetic fields in biological media. Pa 2: The SCAT program, multilayered sphere, theory and applications	801 780 1 213 019 and al 020
Are important weights sensitive to the raternatives in multiattribute utility [AD-AO73366] DRCISION THEORY Subjective versus statistical importance A criterion validation [AD-AO73367] DROYYRIBONUCLEIC ACID The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis DRSIGN ANALYSIS Investigation of effects of temperature, and electrode design on the performance electrochemical coliform detector [NASA-TH-80130] DIAGNOSIS Static acoustic impedance profiles in audiagnosis [ASME PAPER 79-WA/BIO-1] DIALYSIS Dialysis system using ion exchange remembranes permeable to urea molecules [NASA-CASE-NPO-14101-1] DIETS Effect of 1 alpha-hydroxy-cholecalcifero varying phosphorous content in the die calcium phosphorous metabolism in hypo DIFFERENTIATION (BIOLOGY) Micromorphology of neurohypophysis of raexperimental conditions [NASA-TH-75947]	weights. N80-14702 and amino A80-20856 of protein A80-20857 salinity, se of an N80-14676 ditory A80-18643 sesin N80-14687 ol and okinetic rats A80-20445	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [PPRI-PA-1123-VOL-2] N80-15 BLECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-PA-1123-VOL-2] N80-15 BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TM-75941] N80-15 BLECTROCARDIOGRAPHY Polycardiographic research with a single-channe electrocardiograph ELECTROMAGNETIC ABSORPTION State of the knowledge for electromagnetic absorbed dose in man and animals A80-21 Electromagnetic dosimetry for models of humans animals - A review of theoretical and numeric techniques A80-21 ELECTROMAGNETIC FIELDS Occupational exposure to radio-frequency electromagnetic fields in biological media. Pa 2: The SCAT program, multilayered sphere, theory and applications [PB-300904/0] N80-15	801 780 1 213 019 and al 020
Are important weights sensitive to the ralternatives in multiattribute utility [AD-AO73366] DECISION THEORY Subjective versus statistical importance A criterion validation [AD-A073367] DEOXYRIBONUCLEIC ACID The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis DESIGN ANALYSIS Investigation of effects of temperature, and electrode design on the performance electrochemical coliform detector [NASA-TH-80130] DIACHOSIS Static acoustic impedance profiles in audiagnosis [ASME PAPER 79-WA/BIO-1] DIALYSIS Dialysis system using ion exchange rembranes permeable to urea molecules [NASA-CASE-NPO-14101-1] DIETS Effect of 1 alpha-hydroxy-cholecalcifero varying phosphorous content in the die calcium phosphorous metabolism in hypo DIFFERENTIATION (BIOLOGY) Micromorphology of neurohypophysis of raexperimental conditions [NASA-TH-75947] DISEASES	measurement N80-14701 weights. N80-14702 and amino A80-20856 if protein A80-20857 salinity, e of an N80-14676 iditory A80-18643 esin N80-14687 ol and obvinetic rats A80-20445 its under	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIBLDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TM-75941] N80-15 BLECTROCARDIOGRAPHY Polycardiographic research with a single-channe electrocardiograph A80-20 BLECTROMAGNETIC ABSORPTION State of the knowledge for electromagnetic absorbed dose in man and animals A80-21 Electromagnetic dosimetry for models of humans animals - A review of theoretical and numeric techniques A80-21 ELECTROMAGETIC FIELDS Occupational exposure to radio-frequency electromagnetic fields A80-21 Electromagnetic fields in biological media. Pa 2: The SCAT program, multilayered sphere, theory and applications [PB-300904/0] N80-15 BLECTROMAGERIC MEASUREMENT Steady magnetic fields in noninvasive electromagnetic flowmetry	801 780 1 213 019 and al 020
Are important weights sensitive to the raternatives in multiattribute utility [AD-AO73366] DRCISION THEORY Subjective versus statistical importance A criterion validation [AD-AO73367] DROYYRIBONUCLEIC ACID The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis DRSIGN ANALYSIS Investigation of effects of temperature, and electrode design on the performance electrochemical coliform detector [NASA-TH-80130] DIAGNOSIS Static acoustic impedance profiles in audiagnosis [ASME PAPER 79-WA/BIO-1] DIALYSIS Dialysis system using ion exchange remembranes permeable to urea molecules [NASA-CASE-NPO-14101-1] DIETS Effect of 1 alpha-hydroxy-cholecalcifero varying phosphorous content in the die calcium phosphorous metabolism in hypo DIFFERENTIATION (BIOLOGY) Micromorphology of neurohypophysis of raexperimental conditions [NASA-TH-75947]	measurement N80-14701 weights. N80-14702 and amino A80-20856 if protein A80-20857 salinity, e of an N80-14676 iditory A80-18643 esin N80-14687 ol and obvinetic rats A80-20445 its under	industrial/energy processes [PB-300459/5] N80-15 BLECTRIC FIRIDS Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] BLECTRIC POWER TRANSMISSION Biological effects of high-voltage electric fields, an update. Volume 2: Bibliography [EPRI-EA-1123-VOL-2] N80-15 BLECTRIC STIMULI Evoked potentials in immobilized cats to a combination of clicks with painful electrocutaneous stimuli [NASA-TH-75941] N80-15 BLECTROCARDIOGRAPHY Polycardiographic research with a single-channe electrocardiograph A80-20 ELECTROMAGNETIC ABSORPTION State of the knowledge for electromagnetic absorbed dose in man and animals A80-21 Electromagnetic dosimetry for models of humans animals - A review of theoretical and numeric techniques A80-21 ELECTROMAGNETIC FIELDS Occupational exposure to radio-frequency electromagnetic fields in biological media. Pa 2: The SCAT program, multilayered sphere, theory and applications [PB-300904/0] N80-15 ELECTROMAGNETIC HEASUREMENT Steady magnetic fields in noninvasive	801 780 1 213 019 and al 020

SUBJECT INDEX FLIGHT CREWS

ELECTROMAGNETIC RADIATION		EVOKED RESPONSE (PSYCHOPHYSIOLOGY)	
Electromagnetic radiation from selected	•	Deiters-nucleus potentials evoked by st	
telecommunications systems		of the neural elements of bones and	imulation
	0-21018	musculo-cutaneous nerves in animals wi	i+h +ho
Biological effects of electric and magnetic	fields	cerebrum and cerebellum removed	ren ene
associated with ELP communications systems	s	and belebellem lemoved	A80-20682
	0-21029	Evoked potentials in immobilized cats to	1 8
Frequency and power windowing in tissue		combination of clicks with painful	<i>,</i> a
interactions with weak electromagnetic fi	elds	electrocutaneous stimuli	
	0-21032	[NASA-TM-75941]	N80-15780
KLECTROPHYSIOLOGY	J	EXCRETION	15700
The microwave auditory phenomenon		Amino aciduria in weightlessness	
A80	0-21024	,	A80-20022
Brain waves and the enhancement of pilot per		EXOBIOLOGY	
N80	0-14751	Recent advances in Aeronautical and Space	e Medicine
EMOTIONAL FACTORS		[AG ARD-CP-265]	N80-14678
Some considerations concerning methods to en	valuate	Simulation of physiological systems in o	order to
and assess workload in aircraft pilots		evaluate and predict the human conditi	on in a
ENDOCRINE SECRETIONS	0-14743	space flight	
Advances in microwave-induced neuroendocrine		[NASA-TM-76016]	N80-14716
effects - The concept of stress	e	Biological systems for human life suppor	t: Review
	0 21025	of the research in the USSR	
ENDOCRINE SYSTEMS	0-21025	[NASA-TM-76018]	N80-14717
Sleep stage organization: Neuro endocrine r	molodiana	EXPOSURE	
	0-15809	Maintenance of air operations while unde	r attack
ENERGY CONSUMPTION	3-13609	with chemical agents protective cl	othing.
Energy uptake in the first step of visual ex	*citation	[AGARD-CP-264-SUPPL]	N80-14728
	0-20387	The effects of acute and chronic low dos	e exposure
ENVIRONMENT EPPECTS	3 20307	to anticholinesterases	
Sleep disturbances in humans		The offect of levelly and the	N80-14729
-	0-15810	The effect of locally applied organophos	phates on
BNVIRONMENT PROTECTION	50.0	miosis and acetylcholinesterase adapta chronic treatment	tion to
Biological screening of complex samples from	n.	Chronic crediment	NOO 44774
industrial/energy processes		XTRAVEHICULAR ACTIVITY	N80-14731
[PB-300459/5] N80	0-15805	Regenerative CO2 removal for PLSS applic	ation
ENVIRONMENTAL TESTS		[NASA-CR-160419]	N80-14718
Microbial colonization of materials at Innis	sfail, P	XTREMELY LOW RADIO PREQUENCIES	NOU-14/15
Queensland		Biological effects of electric and magne	tic fields
[MRL-TN-428] N80	0-14670	associated with ELF communications sys	tome
ENZYME ACTIVITY			A80-21029
Therapy on nerve agent poisoning		YE (ANATOMY)	
N80			
DD TO DATO TO OUR	0-14732	Special session on vision	
EPIDEMIOLOGY	_	[LBL-9160]	N80-15802
Epidemiologic studies of microwave effects	E	[LBL-9160] YE HOVEMENTS	
Epidemiologic studies of microwave effects A80	_	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The this	rd order
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION	P-21026	[LBL-9160] YE HOVEMENTS	rd order
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes unde	P-21026	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The this kernel of the eye movement control sys	rd order tem
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes unde	D-21026	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The thinkernel of the eye movement control sys The effect of certain extremal factors of	rd order tem
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes unde	P-21026	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The this kernel of the eye movement control sys	rd order tem A80-20860 n the
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes unde non-equilibrium conditions N80 ERGOMETERS	D-21026 Pr D-14669	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The thinkernel of the eye movement control sys The effect of certain extremal factors of	rd order tem
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes unde non-equilibrium conditions N80 ERGOMETERS Body temperature and heart rate relationship	D-21026 er D-14669	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The thing kernel of the eye movement control systems of the effect of certain extremal factors of human auditory function	rd order tem A80-20860 n the
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes unde non-equilibrium conditions N80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exerci	D-21026 er D-14669 os ses	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The thinkernel of the eye movement control sys The effect of certain extremal factors of	rd order tem A80-20860 n the
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes unde non-equilibrium conditions R80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exerci A80 ERROR ANALYSIS	D-21026 er D-14669 DS LSes D-17728	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The thinkernel of the eye movement control sys The effect of certain extremal factors on human auditory function	rd order tem A80-20860 n the
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes unde non-equilibrium conditions R80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exerci A80 ERROR ANALYSIS	D-21026 er D-14669 DS LSes D-17728	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The thickernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY)	rd order tem A80-20860 n the
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercities ERROR ANALYSIS Validation and error in multiplicative utility functions	D-21026 er D-14669 DS LSes D-17728	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The thir kernel of the eye movement control sys The effect of certain extremal factors or human auditory function F ATIGUE (BIOLOGY) Evaluation of human strain during interpretations.	rd order tem A80-20860 n the
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions R80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercing A80 ERROR ANALYSIS Validation and error in multiplicative utiling functions [AD-A073362] N80	D-21026 er D-14669 DS LSes D-17728	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The thickernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY)	rd order tem A80-20860 n the A80-21038
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes unde non-equilibrium conditions R80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exerci A80 ERROR ANALYSIS Validation and error in multiplicative utili functions [AD-A073362] ERITHROCYTES	D-21026 er 0-14669 es ses 0-17728 ety 0-14698	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The thickernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Fvaluation of human strain during interrecexposure to vibration	rd order tem A80-20860 n the
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercions ERROR ANALYSIS Validation and error in multiplicative utility functions [AD-A073362] ERYTHROCYTES A mathematical and experimental simulation of	D-21026 er 0-14669 es ises 0-17728 ty 0-14698 f the	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The thinkernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Fvaluation of human strain during interrexposure to vibration Sleep disturbance and performance	rd order tem A80-20860 n the A80-21038 upted
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes unde non-equilibrium conditions R80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exerci A80 ERROR ANALYSIS Validation and error in multiplicative utili functions [AD-A073362] ERITHROCYTES	D-21026 er 0-14669 es ises 0-17728 ty 0-14698 f the	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The thickernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Fvaluation of human strain during interrecexposure to vibration	rd order tem A80-20860 n the A80-21038
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions R80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercions ERROR ANALYSIS Validation and error in multiplicative utilifunctions [AD-A073362] ERITHROCYTES A mathematical and experimental simulation of hematological response to weightlessness	D-21026 er 0-14669 os ses 0-17728 ty 0-14698 of the	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The thickernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Evaluation of human strain during interresposure to vibration Sleep disturbance and performance EMALES A consideration of factors contributing to	rd order tem A80-20860 n the A80-21038 upted A80-17726
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercions A80 ERROR ANALYSIS Validation and error in multiplicative utility functions [AD-A073362] ERYTHROCYTES A mathematical and experimental simulation of hematological response to weightlessness A80 Development of 'sports anemia' in physically	D-21026 Pr D-14669 Ds Ses D-17728 Pr ty D-14698 If the F20020	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The thickernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Evaluation of human strain during interresposure to vibration Sleep disturbance and performance EMALES A consideration of factors contributing to	rd order tem A80-20860 n the A80-21038 upted A80-17726
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions BRGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercions A80 ERROR ANALYSIS Validation and error in multiplicative utility functions [AD-A073362] BRYTHROCYTES A mathematical and experimental simulation of hematological response to weightlessness A80 Development of 'sports anemia' in physically men after daily sustained submaximal exerc	D-21026 er D-14669 DS SSS SSS D-17728 Ety D-14698 f the D-20020 fitt ise	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The thickernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Fvaluation of human strain during interrexposure to vibration Sleep disturbance and performance	rd order tem A80-20860 n the A80-21038 upted A80-17726 N80-15814
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions R80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercions A80 ERROR ANALYSIS Validation and error in multiplicative utilifunctions [AD-A073362] ERITHROCYTES A mathematical and experimental simulation of hematological response to weightlessness A80 Development of 'sports anemia' in physically men after daily sustained submaximal exerce	D-21026 er D-14669 es ses D-17728 ety D-14698 ef the F-20020 efit dise	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The thickernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Evaluation of human strain during intermexposure to vibration Sleep disturbance and performance EMALES A consideration of factors contributing to strength differences in men and women [AD-A072671] IGHTER AIRCRAFT	rd order tem A80-20860 n the A80-21038 upted A80-17725 N80-15814
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions R80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercions A80 ERROR ANALYSIS Validation and error in multiplicative utiling functions [AD-A073362] ERYTHROCYTES A mathematical and experimental simulation of hematological response to weightlessness Development of 'sports anemia' in physically men after daily sustained submaximal exerce A80-A controlled rate freeze/thaw system for	D-21026 er D-14669 es ses D-17728 ety D-14698 ef the F-20020 efit dise	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The thickernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Evaluation of human strain during intermexposure to vibration Sleep disturbance and performance EMALES A consideration of factors contributing to strength differences in men and women [AD-A072671] IGHTER AIRCRAFT	rd order tem A80-20860 n the A80-21038 upted A80-17725 N80-15814
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercions A80 ERROR ANALYSIS Validation and error in multiplicative utility functions [AD-A073362] ERYTHROCYTES A mathematical and experimental simulation of hematological response to weightlessness A80 Development of 'sports anemia' in physically men after daily sustained submaximal exercing A80 A controlled rate freeze/thaw system for cryopreservation of biological materials	D-21026 er D-14669 DS SSS SSS D-17728 Ety D-14698 f the P-20020 fit SSS FITTON	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The this kernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Evaluation of human strain during interresexposure to vibration Sleep disturbance and performance ENALES A consideration of factors contributing to strength differences in men and women [AD-A072671] IGHTER AIRCRAFT An advanced oxygen system for future contributions of the strength of the streng	rd order tem A80-20860 n the A80-21038 upted A80-17725 N80-15814
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions R80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercions A80 ERROR ANALYSIS Validation and error in multiplicative utility functions [AD-A073362] ERITHROCYTES A mathematical and experimental simulation of hematological response to weightlessness A80 Development of 'sports anemia' in physically men after daily sustained submaximal exerce A80 A controlled rate freeze/thaw system for cryopreservation of biological materials [NASA-CR-162531]	D-21026 er 0-14669 os ses 0-17728 ty 0-14698 of the -20020 fit ise -20448 F1	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The this kernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Evaluation of human strain during intermexposure to vibration Sleep disturbance and performance EMALES A consideration of factors contributing to strength differences in men and women [AD-A072671] IGHTER AIRCRAFT An advanced oxygen system for future comb	rd order tem A80-20860 n the A80-21038 upted A80-17726 N80-15814 to N80-14694 pat aircraft N80-14680
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercions A80 ERROR ANALYSIS Validation and error in multiplicative utility functions [AD-A073362] ERYTHROCYTES A mathematical and experimental simulation of hematological response to weightlessness Development of 'sports anemia' in physically men after daily sustained submaximal exerce A80 A controlled rate freeze/thaw system for cryopreservation of biological materials [NASA-CR-162531] The interaction of ozone with the human eryti	D-21026 er D-14669 es ses Ses D-17728 ety D-14698 ef the D-20020 efit dise D-20448 er D-14675 hrocyte	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The this kernel of the eye movement control systems of the eye movement control system of the effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Evaluation of human strain during interresposure to vibration Sleep disturbance and performance EMALES A consideration of factors contributing the strength differences in men and women [AD-A072671] IGHTER AIRCRAFT An advanced oxygen system for future combined the strength of the system of th	rd order tem A80-20860 n the A80-21038 upted A80-17726 N80-15814 to N80-14694 pat aircraft N80-14680
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exerciants and the state of	D-21026 er D-14669 DS SSS SSS D-17728 Ety D-14698 f the D-20020 efit ise D-20448 F1 D-14675 F1 D-14	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The this kernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Evaluation of human strain during intermexposure to vibration Sleep disturbance and performance EMALES A consideration of factors contributing to strength differences in men and women [AD-A072671] IGHTER AIRCRAFT An advanced oxygen system for future comb	rd order tem
Epidemiologic studies of microwave effects R80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions R80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercions R80 ERROR ANALYSIS Validation and error in multiplicative utility functions [AD-A073362] ENTIFROCYTES A mathematical and experimental simulation of hematological response to weightlessness also be evelopment of 'sports anemia' in physically men after daily sustained submaximal exerce and controlled rate freeze/thaw system for cryopreservation of biological materials [NASA-CR-162531] The interaction of ozone with the human erytless of the controlled refects of photochemical ox. 880	D-21026 er D-14669 es ses Ses D-17728 ety D-14698 ef the D-20020 efit dise D-20448 er D-14675 hrocyte	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The thickernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Fvaluation of human strain during interresposure to vibration Sleep disturbance and performance EMALES A consideration of factors contributing to strength differences in men and women [AD-A072671] IGHTER AIRCRAFT An advanced oxygen system for future contributing to the contribution of the cont	rd order tem A80-20860 n the A80-21038 upted A80-17726 N80-15814 to N80-14694 pat aircraft N80-14680
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercions A80 ERROR ANALYSIS Validation and error in multiplicative utiling functions [AD-A073362] ERYTHROCYTES A mathematical and experimental simulation of hematological response to weightlessness Development of 'sports anemia' in physically men after daily sustained submaximal exerce A80 A controlled rate freeze/thaw system for cryopreservation of biological materials [NASA-CR-162531] The interaction of ozone with the human erytless of photochemical ox: N80- ESTROGENS	D-21026 er D-14669 DS SSS SSS D-17728 Ety D-14698 f the D-20020 efit ise D-20448 F1 D-14675 F1 D-14	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The this kernel of the eye movement control systems of the eye movement control system of the effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Evaluation of human strain during interresposure to vibration Sleep disturbance and performance EMALES A consideration of factors contributing the strength differences in men and women [AD-A072671] IGHTER AIRCRAFT An advanced oxygen system for future combination of the strength of th	rd order tem A80-20860 n the A80-21038 upted A80-17726 N80-15814 to N80-14694 pat aircraft N80-14680 ter pilots N80-14735
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercity and the submaximal exercity and extraordinate and submaximal exercity and the submaximal exercity and extraordinate and submaximal exercity and extraordinate	D-21026 er 0-14669 es ses 1-17728 ty 0-14698 ef the 1-20020 fit ise 1-20448 F1 14675 F1	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The this kernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) F valuation of human strain during interresponder to vibration Sleep disturbance and performance ENALES A consideration of factors contributing strength differences in men and women [AD-A072671] IGHTER AIRCRAFT An advanced oxygen system for future combined the Air Porce US aircrew chemical defense assemblies	rd order tem
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercions A80 ERROR ANALYSIS Validation and error in multiplicative utiling functions [AD-A073362] ERYTHROCYTES A mathematical and experimental simulation of hematological response to weightlessness Development of 'sports anemia' in physically men after daily sustained submaximal exerce A80 A controlled rate freeze/thaw system for cryopreservation of biological materials [NASA-CR-162531] The interaction of ozone with the human erytless of photochemical ox: N80- ESTROGENS	D-21026 er 0-14669 es ses 1-17728 ty 0-14698 ef the 1-20020 fit ise 1-20448 F1 14675 F1	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The thickernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Fvaluation of human strain during interresposure to vibration Sleep disturbance and performance EMALES A consideration of factors contributing to strength differences in men and women [AD-A072671] IGHTER AIRCRAFT An advanced oxygen system for future contributing to the contribution of the cont	rd order tem A80-20860 n the A80-21038 upted A80-17726 N80-15814 to N80-14694 oat aircraft N80-14680 er pilots N80-14735
Epidemiologic studies of microwave effects R80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions R80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercions R80 ERROR ANALYSIS Validation and error in multiplicative utility functions [AD-A073362] ERITHROCYTES A mathematical and experimental simulation of hematological response to weightlessness Development of 'sports anemia' in physically men after daily sustained submaximal exerce A80 A controlled rate freeze/thaw system for cryopreservation of biological materials [NASA-CR-162531] The interaction of ozone with the human eryting in the interaction ozone with the inte	P)-21026 er 0-14669 es s.ses 0-17728 ety 0-14698 ef the -20020 efit cise -20448 e-20448 e-14675 hrocyte idants -14686 actin	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The this kernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Evaluation of human strain during interresponder to vibration Sleep disturbance and performance EMALES A consideration of factors contributing strength differences in men and women [AD-A072671] IGHTER AIRCRAFT An advanced oxygen system for future combination of the system of the sys	rd order tem
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions R80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercions and the second submaximal bicycle ergometer exercions and error in multiplicative utility functions [AD-A073362] ERITHROCITES A mathematical and experimental simulation of hematological response to weightlessness and hematological response to weightlessness and controlled rate freeze/thaw system for cryopreservation of biological materials [NASA-CR-162531] The interaction of ozone with the human eryty and estrogens effects on avian anterior pituitary growth hormone and professional erects.	D-21026 er 0-14669 es ses 1-17728 ty 0-14698 ef the 1-20020 fit ise 1-20448 F1 14675 F1	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The this kernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) F valuation of human strain during interresponder to vibration Sleep disturbance and performance ENALES A consideration of factors contributing strength differences in men and women [AD-A072671] IGHTER AIRCRAFT An advanced oxygen system for future combined that in the Air Porce US aircrew chemical defense assemblies FRG aircrew chemical defence assemblies Integration of protection against chemical	rd order tem
Epidemiologic studies of microwave effects R80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions R80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercions and error in multiplicative utility functions [AD-A073362] ERITHROCYTES A mathematical and experimental simulation of hematological response to weightlessness also bevelopment of 'sports anemia' in physically men after daily sustained submaximal exerce and controlled rate freeze/thaw system for cryopreservation of biological materials [NASA-CR-162531] The interaction of ozone with the human eryther interaction of ozone with the human eryther interaction of ozone with the human eryther interaction pituitary growth hormone and professions anterior pituitary growth hormone and professions.	P)-21026 er 0-14669 es s.ses 0-17728 ety 0-14698 ef the -20020 efit cise -20448 e-20448 e-14675 hrocyte idants -14686 actin	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The this kernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Evaluation of human strain during interresponder to vibration Sleep disturbance and performance EMALES A consideration of factors contributing strength differences in men and women [AD-A072671] IGHTER AIRCRAFT An advanced oxygen system for future combination of the system of the sys	rd order tem
Epidemiologic studies of microwave effects R80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions R80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercions R80 ERROR ANALYSIS Validation and error in multiplicative utility functions [AD-A073362] ERITHROCYTES A mathematical and experimental simulation of hematological response to weightlessness Development of 'sports anemia' in physically men after daily sustained submaximal exerce A80 A controlled rate freeze/thaw system for cryopreservation of biological materials [NASA-CR-162531] The interaction of ozone with the human eryting in the interaction ozone with the human eryting in the interaction ozone with th	D-21026 Pr D-14669 Ds Ses Ses D-17728 Pr D-14698 Of the D-20020 Fit Cise D-20448 Pr D-14675 Pr D-14686 Actin D-20447	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The this kernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Evaluation of human strain during interrespondent to vibration Sleep disturbance and performance EMALES A consideration of factors contributing to strength differences in men and women [AD-A072671] IGHTER AIRCRAFT An advanced oxygen system for future combined the contribution of protection against chemical agents with aircrew personal equipment	rd order tem
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions R80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercion and error in multiplicative utility functions [AD-A073362] ERITHROCYTES A mathematical and experimental simulation of hematological response to weightlessness also bevelopment of 'sports anemia' in physically men after daily sustained submaximal exerce and controlled rate freeze/thaw system for cryopreservation of biological materials [NASA-CR-162531] The interaction of ozone with the human erythematical of the interaction of ozone with the human erythematical or interaction pituitary growth hormone and professors anterior pituitary growth hormone and professors biology and medicine in space: Research opportunities offered by Spacelab. An invitation to European investigators	D-21026 Pr D-14669 Ds Ses Ses D-17728 Pr D-14698 Of the D-20020 Fit Cise D-20448 Pr D-14675 Pr D-14686 Actin D-20447	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The this kernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) F valuation of human strain during interresponder to vibration Sleep disturbance and performance ENALES A consideration of factors contributing strength differences in men and women [AD-A072671] IGHTER AIRCRAFT An advanced oxygen system for future combination of the strength differences in the fight in the Air Porce US aircrew chemical defense assemblies FRG aircrew chemical defence assemblies Integration of protection against chemical agents with aircrew personal equipment	rd order tem A80-20860 n the A80-21038 upted A80-17726 N80-15814 to N80-14694 oat aircraft N80-14680 ter pilots N80-14735 N80-14737 li warfare N80-14738
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions R80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercions A80 ERROR ANALYSIS Validation and error in multiplicative utilifunctions [AD-A073362] RRYTHROCYTES A mathematical and experimental simulation of hematological response to weightlessness A80 Development of 'sports anemia' in physically men after daily sustained submaximal exerce A80 A controlled rate freeze/thaw system for cryopreservation of biological materials [NASA-CR-162531] The interaction of ozone with the human erytlen-biological effects of photochemical ox: N80- ESTROGENS Hypergravity and estrogen effects on avian anterior pituitary growth hormone and prolativels EUROPEAN SPACE PROGRAMS Biology and medicine in space: Research opportunities offered by Spacelab. An invitation to European investigators [ESA-BR-O1]	D-21026 Pr D-14669 Ds Ses Ses D-17728 Pr D-14698 Of the D-20020 Fit Cise D-20448 Pr D-14675 Pr D-14686 Actin D-20447	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The thickernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Evaluation of human strain during interresexposure to vibration Sleep disturbance and performance EMALES A consideration of factors contributing of strength differences in men and women [AD-A072671] IGHTER AIRCRAFT An advanced oxygen system for future continuation in the Air Porce US aircrew chemical defense assemblies FRG aircrew chemical defence assemblies Integration of protection against chemical agents with aircrew personal equipment IGHT CREWS Sleep and body rhythm disturbance in long	rd order tem
Epidemiologic studies of microwave effects A80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions N80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercion and error in multiplicative utility functions [AD-A073362] ERITHROCYTES A mathematical and experimental simulation of hematological response to weightlessness Development of 'sports anemia' in physically men after daily sustained submaximal exercion and controlled rate freeze/thaw system for cryopreservation of biological materials [NASA-CR-162531] The interaction of ozone with the human eryting in the interac	D-21026 Pr D-14669 DS SSES D-17728 Lty D-14698 If the P-20020 Fit SSES D-14675 Plants Pr D-14675 Plants Pr D-14675 Plants Pr D-14677 FI D-14677	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The this kernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Evaluation of human strain during interrexposure to vibration Sleep disturbance and performance EMALES A consideration of factors contributing strength differences in men and women [AD-A072671] IGHTER AIRCRAFT An advanced oxygen system for future combination of the procession of protection against chemical agents with aircrew personal equipment LIGHT CREWS Sleep and body rhythm disturbance in long aviation. The problem and a search for	rd order tem A80-20860 n the A80-21038 upted A80-17726 N80-15814 to N80-14694 pat aircraft N80-14680 ter pilots N80-14735 N80-14737 tl warfare N80-14738
Epidemiologic studies of microwave effects R80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions R80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercions R80 ERROR ANALYSIS Validation and error in multiplicative utility functions [AD-A073362] ERITHROCYTES A mathematical and experimental simulation of hematological response to weightlessness as the material and experimental simulation of hematological response to weightlessness as the material and experimental simulation of hematological response to weightlessness as the material of the material simulation of hematological response to weightlessness as the material simulation of the material simulation of the material simulation of hematological materials [NASA-CR-162531] The interaction of biological materials [NASA-CR-162531] The interaction of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system	D-21026 Pr D-14669 DS	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The this kernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Pvaluation of human strain during interrexoposure to vibration Sleep disturbance and performance EMALES A consideration of factors contributing to strength differences in men and women [AD-A072671] IGHTER AIRCRAFT An advanced oxygen system for future combination the Air Porce US aircrew chemical defense assemblies FRG aircrew chemical defence assemblies Integration of protection against chemical agents with aircrew personal equipment IGHT CREWS Sleep and body rhythm disturbance in long aviation. The problem and a search for	rd order tem A80-20860 n the A80-21038 upted A80-17726 N80-15814 to N80-14694 oat aircraft N80-14680 ter pilots N80-14735 N80-14737 il warfare N80-14738 -range relief N80-14714
Epidemiologic studies of microwave effects R80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions R80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercions R80 ERROR ANALYSIS Validation and error in multiplicative utility functions [AD-A073362] ERITHROCYTES A mathematical and experimental simulation of hematological response to weightlessness as the material and experimental simulation of hematological response to weightlessness as the material and experimental simulation of hematological response to weightlessness as the material of the material simulation of hematological response to weightlessness as the material simulation of the material simulation of the material simulation of hematological materials [NASA-CR-162531] The interaction of biological materials [NASA-CR-162531] The interaction of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system	D-21026 Pr D-14669 DS SSES D-17728 Lty D-14698 If the P-20020 Fit SSES D-14675 Plants Pr D-14675 Plants Pr D-14675 Plants Pr D-14677 FI D-14677	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The this kernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Evaluation of human strain during interrexposure to vibration Sleep disturbance and performance EMALES A consideration of factors contributing strength differences in men and women [AD-A072671] IGHTER AIRCRAFT An advanced oxygen system for future combination of the procession of protection against chemical agents with aircrew personal equipment LIGHT CREWS Sleep and body rhythm disturbance in long aviation. The problem and a search for	rd order tem A80-20860 n the A80-21038 upted A80-17726 N80-15814 to N80-14694 oat aircraft N80-14680 ter pilots N80-14735 N80-14737 il warfare N80-14738 -range relief N80-14714
Epidemiologic studies of microwave effects R80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions R80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercions R80 ERROR ANALYSIS Validation and error in multiplicative utility functions [AD-A073362] ERITHROCYTES A mathematical and experimental simulation of hematological response to weightlessness as the material and experimental simulation of hematological response to weightlessness as the material and experimental simulation of hematological response to weightlessness as the material of the material simulation of hematological response to weightlessness as the material simulation of the material simulation of the material simulation of hematological materials [NASA-CR-162531] The interaction of biological materials [NASA-CR-162531] The interaction of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system	D-21026 Pr D-14669 DS	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The this kernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Pvaluation of human strain during interrexposure to vibration Sleep disturbance and performance ENALES A consideration of factors contributing to strength differences in men and women [AD-A072671] IGHTER AIRCRAFT An advanced oxygen system for future combination the Air Porce US aircrew chemical defense assemblies FRG aircrew chemical defence assemblies Integration of protection against chemical agents with aircrew personal equipment IGHT CREWS Sleep and body rhythm disturbance in long aviation. The problem and a search for Consideration of pyridostigmine as a propagent for aircrew	rd order tem
Epidemiologic studies of microwave effects R80 EQUATIONS OF MOTION Kinematic analysis of osmotic processes under non-equilibrium conditions R80 ERGOMETERS Body temperature and heart rate relationship during submaximal bicycle ergometer exercions R80 ERROR ANALYSIS Validation and error in multiplicative utility functions [AD-A073362] ERITHROCYTES A mathematical and experimental simulation of hematological response to weightlessness as the material and experimental simulation of hematological response to weightlessness as the material and experimental simulation of hematological response to weightlessness as the material of the material simulation of hematological response to weightlessness as the material simulation of the material simulation of the material simulation of hematological materials [NASA-CR-162531] The interaction of biological materials [NASA-CR-162531] The interaction of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system for cryopreservation of ozone with the human erytical controlled rate freeze/thaw system	D-21026 Pr D-14669 DS	[LBL-9160] YE MOVEMENTS Interpreting nonlinear systems - The thickernel of the eye movement control sys The effect of certain extremal factors of human auditory function F ATIGUE (BIOLOGY) Evaluation of human strain during interresexposure to vibration Sleep disturbance and performance ENALES A consideration of factors contributing of strength differences in men and women [AD-A072671] IGHTER AIRCRAFT An advanced oxygen system for future combination of the Air Porce US aircrew chemical defense assemblies FRG aircrew chemical defence assemblies Integration of protection against chemica agents with aircrew personal equipment IGHT CREWS Sleep and body rhythm disturbance in long aviation. The problem and a search for Consideration of pyridostigmine as a propagent for aircrew	rd order tem

Aircrew workload assessment techniques factors engineering study of performanc flight crews workloads	- human e of	FLYING PERSONNEL Problems related to medical criteria for selection of military navigation person	the nnel N80-14679
	N80-14746		14013
Aircrew performance research opportunitie the Air Combat Maneuvering Range (ACMR)	s using N80-14753	FOREARM Quantitative study of free amino acids in eccrine sweat excreted from the forearm	ES OF
Speech patterns and aircrew workload	N80-14754	healthy trained and untrained men during	ng exercise A80-17727
Management of irregular rest and activity		FOURIER TRANSFORMATION Spatial filtering and mechanisms of perce	eption
DITCUM PIRTCUR		in human vision	A80-20858
Survey of methods to assess workload [AGARD-AG-246] Concepts of fatigue survey of studies	N80-14739 on pilot	PREQUENCY RESPONSE Static acoustic impedance profiles in au	ditory
performance and flight fatigue discusse terms of physiological and psychologica	ea 111 D	diagnosis [ASNE PAPER 79-WA/BIO-1] FUNGI	A80-18643
Concepts of stress		Study of fungal phenotypes after exposure flight parameters	e to space
Physiologic aspects of workload/fatigue/s	N80-14742 stress	Tilght parameters	A80-17986
Some insights relative to the man-machine	NOU-14/44	G	
An overview of ten years of research	N80-14745	CAS DEFECTORS	
TT TORM PIMEPCC		Approaches to CW agent area detection sy airfields	stems for
Recent advances in Aeronautical and Space	MOU-140/0		N80-14733
Problems related to medical criteria for selection of military navigation person	the nnel N80-14679	GENETIC CODE The informational structure of DNA, RNA, acid sequences	
The European approach to the selection as		Information processes in the evolution o	A80-20856 of protein
training of SL payload specialists	N80-14681	synthesis	A80-20857
FLIGHT OPERATIONS	• •	GERNANY	
Some considerations concerning methods t and assess workload in aircraft pilots		PRG aircrew chemical defence assemblies	N80-14737
Workload assessment methodology developm	ent	GLAUCOMA	
•	N80-14747	Intra-ocular pressure normalization tech equipment	
FLIGHT SAFETY When day is done and shadows fall, we mi airport most of all visual accommo	ss the dation and	[NASA-CASE-LEW-12955-1] GRAVITATIONAL EFFECTS	N80-14684
aircraft flight safety	A80-19024	Effect of hypogravity on human lymphocyt	A8U-2U446
	A00-1902-	Hypergravity and estrogen effects on avi	ian
FLIGHT SIMULATION A new engineering approach to motion cue	ing	anterior pituitary growth hormone and levels	prolactin
technology for flight simulation [AIAA PAPER 80-0047]	A80-18250	•	A80-20447
FLIGHT SIMULATORS Proficiency maintenance and assessment i	n an	GROUP DYNAMICS A criterion validation of multiattribute	e utility
instrument flight simulator	A80-19023	analysis and of a group communication	8trategy N80-14699
Real-time simulation of FLIR and LLLTV S	ystems for	Extended analysis of small group perform the effects of contingency management	mance and in a
aircrew training	A80-20899	programmed environment	n80-14705
FLIGHT STRESS (BIOLOGY) Supersonic aerial transport: Medical ar	ıđ	[AD-A068665] GROWTH	-
physiological aspects Concorde all	rcraft N80-14683	Hypergravity and estrogen effects on avainaterior pituitary growth hormone and levels	protactin
Survey of methods to assess workload [AGARD-AG-246]	N80-14739	Microbial colonization of materials at	A80-20447 Innisfail,
Concepts of stress	N80-14742	Queensland	N80-14670
Some considerations concerning methods to and assess workload in aircraft pilot:	5	[MRI-TN-428]	
Physiologic aspects of workload/fatigue,	N80-14743 /stress N80-14744	HEALTH PHISICS	
Biochemical indices of stress: Biochem aspects of the stress response	ical	Electromagnetic dosimetry for models of animals - A review of theoretical and	numerical
PITCHE TOLINIC	N80-15812	techniques	A80-21020
Proficiency maintenance and assessment	in an	Microwave biological effects - An overv	A80-21021
instrument flight simulator	A80-19023	Microwave cataractogenesis	A80-21022
<pre>PLIR DETECTORS Real-time simulation of PLIR and LLLTV aircrew training</pre>		Soviet and Eastern European research on effects of microwave radiation	a biological
PI OURPTERS	A80-20899	Study of effects of long-term low-level	
Steady magnetic fields in noninvasive electromagnetic flowmetry		exposure on rats - A plan	A80-21028
	A80-21033	Cellular effects: Millimeter waves and spectra - Report of a panel discussio	on
YLUOROCARBOWS Synthesis and biological screening by n fluorocarbon hydrocarbon compounds for	ovel hybrid r use as		A80-21031
artificial blood substitutes [NASA-CR-162537]	N80-14689		

SUBJECT INDEX HUMAN FACTORS ENGINEERING

HEARING	_	A study in procedural manipulation of lo	cus of
Derivation of presbycusis and Noise Indu Permanent Threshold Shift (NIPTS) to 1		control	
the basis of a standard on the effects		[AD-A068658]	พ80-14704
on hearing	o or norse	Rule learning and systematic instruction training	in pilot
[AD-A071310]	N80-14690	[AD-A068906]	N80-14709
HEART		Rating errors of inconsistency as a func-	tion of
Activity of cholinesterases of blood and		dimensionality of behavioral anchors	
rats of different sex and age during a	nuscular	[AD-A068922]	N80-14710
loads and hypokinesia	WOO 45 70 4	A mind/brain/matter model consistent with	h guantum
[NASA-TH-75951] HEART DISEASES	N80-15781	physics and UPO phenomena	
Left ventricular relaxation and filling	nattern in	[AD-A068988] HUMAN BRINGS	N80-14711
different forms of left ventricular hy	pertrophy	State of the knowledge for electromagnet:	ic
- An echocardiographic study		absorbed dose in man and animals	LC.
	A80-18975		A80-21019
HBART RATE		Circadian and circannual rhythms in heal	thy adults
Body temperature and heart rate relation			N80-15807
during submaximal bicycle ergometer ex	A80-17728	HUMAN BODY	_
Handling qualities, workload and heart r	ate	Quantitative study of free amino acids in eccrine sweat excreted from the forears	human
managed and model a	N80-14750	healthy trained and untrained men during	IS OI
HEAT BEASUREMENT	,	are and trained and district men dutti	A80-17727
Energy uptake in the first step of visua	l excitation	The interaction of ozone with the human e	rythrocyte
	A80-20387	biological effects of photochemical	oxidants
HEAT TOLERANCE			N80-14686
Three instruments for assessment of WBG1 comparison with WGT (BOTSBALL)	and a	Design criteria for characterizing indivi	iduals in
[AD-A074979]	N80-14691	the extreme upper and lower body size r	
Thermal environment physiological ba		[AD-A072353] HUMAN FACTORS ENGINEERING	N80-14721
temperature tolerance limits		The effect of character size on the legit	ility of
	ห80-15791	numeric displays during vertical whole-	
HEMATOCRIT RATIO		vibration	20 1
Development of 'sports anemia' in physic	ally fit		A80-18839
men after daily sustained submaximal e		When day is done and shadows fall, we mis	s the
HEBATOLOGY	A80-20448	airport most of all visual accommod	lation and
A mathematical and experimental simulati	on of the	aircraft flight safety	100 10000
hematological response to weightlessne	SS	Mathematical concepts for modeling human	A80-19024
	A80-20020	in complex man-machine systems	Dena vioi
The interaction of ozone with the human	erythrocyte	•	A80-19025
biological effects of photochemica		Three instruments for assessment of WEGT	and a
HEMODYNAMIC RESPONSES	N80-14686	comparison with WGT (BOTSBALL)	
A mathematical and experimental simulati	on of the	[AD-A074979]	N80-14691
hematological response to weightlessne		Anthropometric sizing, fit-testing and ev	aluation
northological response to religible	A80-20020	of the MBU-12/P oral-nasal oxygen mask [AD-A074723]	N80-14692
BEHODYNAHICS		Importance weight assessment for additive	
Practical criteria for analyzing the hea	rt	riskless preference functions: A revie	v
hemodynamics of young athletes		[AD-A073365]	N80-14700
Effort of amploaged branchisesia on time	A80-20212	Effect of peripherally presented visual s	ignals on
Effect of prolonged hypokinesia on tissu [NASA-TM-76005]	e blood flow N80-14688	pilot performance during flight simulat	
Changes of some blood indices and myocar	dia 1	[AD-A073604] Extended analysis of small group performa	N80-14703
electrolyte content during hypokinesia		the effects of contingency management i	
[NASA-TM-75954]	N80-15798	programmed environment	
HEMOGLOBIN			N80-14705
Development of 'sports anemia' in physic	ally _. fit	Ability, involvement and climate as multi	ple and
men after daily sustained submaximal e		interactive predictors of performance	
HIBERNATION	A80-20448		N80-14706
Temperature compensation of the metabolic	ST Of	Methodological and conceptual issues in	
serotonin in the brain of hibernating		understanding ability-performance relat [AD-A068894]	N 80-14708
	A80-18082	Rule learning and systematic instruction	
HIGH GRAVITY ENVIRONMENTS		training	P110t
Hypergravity and estrogen effects on avi-		[AD-A068906]	N80-14709
anterior pituitary growth hormone and	prolactin	Technologies for the handicapped and the	a ged
levels	390-20442		N80-14715
HISTOLOGY	A80-20447	Methods for evaluating the physical and e	ffort
Bone remodeling in centrifuged rats -		requirements of Navy tasks: Metabolic, performance, and physical ability corre	1.4
Histomorphometric study after an 18-day	y run	perceived effort	rates or
- · · · · · · · · · · · · · · · · · · ·	A80-20450		N80-14720
HOMEOSTASIS		PRG aircrew chemical defence assemblies	
Hormonal regulation of calcium and phosp	horus		N 80- 14737
homeostasis during physical activity	100 0000	Integration of protection against chemica	l Warfare
HORMONE METABOLISMS	A80-20684	agents with aircrew personal equipment	
Hormonal regulation of calcium and phosp	horns		N80-14738
homeostasis during physical activity	1101 43	Aircrew workload assessment techniques factors engineering study of performance	
, []	A80-20684	flight crews workloads	6 01
HORMONES			N80-14746
Biochemical indices of stress: Biochemic	cal	Quantitative military workload analysis	
aspects of the stress response	-0.0 45040		N80-14748
ETHEN DECENTAD	N80-15812	Visual performance: A method to assess we	orkload
HUMAN BEHAVIOR Mathematical concents for modeling human	hehauian	in the flight environment	
Mathematical concepts for modeling human in complex man-machine systems	De NG ATOT		N80-14749
man machine placema	A80-19025	Handling qualities, workload and heart ra-	te 180-14750
		•	19/30

HUMAN PERFORMANCE SUBJECT INDEX

Daytime visual acuity of observers through a	
havetine Alegal actics of operation and ale	HYPOKINESIA Effect of 1 alpha-hydroxy-cholecalciferol and
window with and without binoculars	varying phosphorous content in the diet on
[AD-A074722] N80-15800 Some human factors issues in the development and	calcium phosphorous metabolism in hypokinetic rats
evaluation of cockpit alerting and warning systems	A80-20445
[NASA-RP-1055] N80-15821	The effect of certain extremal factors on the
RUMAN PERPORBANCE	human auditory function A80-21038
The effect of certain extremal factors on the	The effects of hypodynamia and hypokinesia on the
human auditory function	arterial bed of pelvic limb muscles in the rabbit
The effect of aircraft noise on the functional	f NASA-TM-75984] N80-146/3
state of human operators	Effect of prolonged hypokinesia on tissue blood flow rwss-TM-760051 N80-14688
A80-21039	[NASA-TM-76005] N80-14688 Influence of hypokinesis on physiological
Extended analysis of small group performance and	functions in fowl
the effects of contingency management in a	rnasa-TM-759991 N80-15778
programmed environment [AD-A068665] N80-14705	Rat reaction to hypokinesia after prior adaptation
Ability, involvement and climate as multiple and	to hypoxia r wasa-rm-759641
interactive predictors of performance	[NASA-TM-75964] N8U-15/82 Study on the neuronal circuits implicated in
ran-a0688911 N8U-147U0	postural tremor and hypokinesia
Work performance as a function of the interaction of ability, work values, and the perceived work	f NASA-TM-760047 N80-15783
environment	Joint Soviet-American experiment on hypokinesia:
ran-a0688931 N80-14707	Experimental results [Nasa-TM-76013] N80-15796
Methodological and conceptual issues in	[NASA-TM-76013] N8U-15/96 Changes of some blood indices and myocardial
understanding ability-performance relationships	electrolyte content during hypokinesia
[AD-A068894] Rating errors of inconsistency as a function of	r nasa-tm-75954 1 N80-15798
dimensionality of behavioral anchors	Mechanism of disorder of plastic processes in
ran-a0689221 N80-14710	tissue during prolonged hypokinesia
sleep and hody rhythm disturbance in long-range	[NASA-TM-75955] N80-15799 HYPOXIA
aviation. The problem and a search for relief	Effect of hypoxia on the contractile activity of
Methods for evaluating the physical and effort	smooth muscle cells in the thoracic duct
requirements of Navv tasks: Metabolic,	A80-20683
performance, and physical ability correlates of	Rat reaction to hypokinesia after prior adaptation
perceived effort	to hypoxia rwasa-rm-759641 N80-15782
[AD-A072497] N80-14720	[NASA-TM-75964] N8U-15782 HYSTERESIS
Individual and system performance indices for the air traffic control system	Nonlinear interactions in binocular vision
N80-14756	A80-20859
Assessment correlates of workload and performance	-
NRO-14758	
Circadian rhythms of human performance and	THAGE CONTRAST
Circadian rhythms of human performance and resistance: Operational aspects N80-15808	<pre>IMAGE CONTRAST Theoretical problems in modeling color grating</pre>
resistance: Operational aspects N80-15808 Sleep disturbance and performance	Theoretical problems in modeling color grating detection in human vision
resistance: Operational aspects N80-15808 Sleep disturbance and performance N80-15814	Theoretical problems in modeling color grating detection in human vision A80-20861
resistance: Operational aspects N80-15808 Sleep disturbance and performance N80-15814 Circadian rhythms in air operations	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY
resistance: Operational aspects N80-15808 Sleep disturbance and performance N80-15814 Circadian rhythms in air operations	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of
resistance: Operational aspects N80-15808 Sleep disturbance and performance N80-15814 Circadian rhythms in air operations	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight
resistance: Operational aspects N80-15808 Sleep disturbance and performance N80-15814 Circadian rhythms in air operations Hypnotics and the management of disturbed sleep N80-15818	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] N80-15779
resistance: Operational aspects N80-15808 Sleep disturbance and performance N80-15814 Circadian rhythms in air operations Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPACT RESISTANCE
resistance: Operational aspects N80-15808 Sleep disturbance and performance N80-15814 Circadian rhythms in air operations Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, wibration, and impact physiological effects
resistance: Operational aspects N80-15808 Sleep disturbance and performance N80-15814 Circadian rhythms in air operations N80-15816 Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPACT RESISTANCE
resistance: Operational aspects N80-15808 Sleep disturbance and performance N80-15814 Circadian rhythms in air operations N80-15816 Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NSO-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 INDICATING INSTRUMENTS
resistance: Operational aspects N80-15808 Sleep disturbance and performance N80-15814 Circadian rhythms in air operations N80-15816 Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLERANCES The physiological basis for spacecraft environmental limits	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 INDICATING INSTRUMENTS Preliminary investigation of pilot scanning
resistance: Operational aspects N80-15808 Sleep disturbance and performance N80-15814 Circadian rhythms in air operations N80-15816 Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLERANCES The physiological basis for spacecraft environmental limits [N80-15788]	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 INDICATING INSTRUMENTS Preliminary investigation of pilot scanning techniques of dial pointing instruments
resistance: Operational aspects N80-15808 Sleep disturbance and performance N80-15814 Circadian rhythms in air operations Hac-15816 Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLERANCES The physiological basis for spacecraft environmental limits [N80-15788] Atmosphere physiological basis for spacecraft	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 INDICATING INSTRUMENTS Preliminary investigation of pilot scanning techniques of dial pointing instruments [NASA-TM-80079] INDUSTRIAL SAPRTY
resistance: Operational aspects N80-15808 Sleep disturbance and performance N80-15814 Circadian rhythms in air operations N80-15816 Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLERANCES The physiological basis for spacecraft environmental limits [N80-15788]	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 INDICATING INSTRUMENTS Preliminary investigation of pilot scanning techniques of dial pointing instruments [NASA-TM-80079] INDUSTRIAL SAPETY Occupational exposure to radio-frequency
resistance: Operational aspects N80-15808 Sleep disturbance and performance N80-15814 Circadian rhythms in air operations Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLERANCES The physiological basis for spacecraft environmental limits [NASA-RP-1045] Atmosphere physiological basis for spacecraft pressure tolerance limits N80-15789 Sound and noise in spacecraft	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 INDICATING INSTRUMENTS Preliminary investigation of pilot scanning techniques of dial pointing instruments [NASA-TM-80079] IMDUSTRIAL SAPETY Occupational exposure to radio-frequency electromagnetic fields
resistance: Operational aspects N80-15808 Sleep disturbance and performance N80-15814 Circadian rhythms in air operations N80-15816 Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLERANCES The physiological basis for spacecraft environmental limits [NASA-RP-1045] Atmosphere physiological basis for spacecraft pressure tolerance limits N80-15789 Sound and noise in spacecraft	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [N80-15779] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 INDICATING INSTRUMENTS Preliminary investigation of pilot scanning techniques of dial pointing instruments [N80-14697] IMDUSTRIAL SAPETY Cccupational exposure to radio-frequency electromagnetic fields A80-21017
resistance: Operational aspects N80-15808 Sleep disturbance and performance N80-15814 Circadian rhythms in air operations Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLERANCES The physiological basis for spacecraft environmental limits [NASA-RP-1045] Atmosphere physiological basis for spacecraft pressure tolerance limits N80-15788 Sound and noise in spacecraft N80-15793 Radiofrequency radiation spacecraft	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 IMDICATING INSTRUMENTS Preliminary investigation of pilot scanning techniques of dial pointing instruments [NASA-TM-80079] INDUSTRIAL SAPETY Occupational exposure to radio-frequency electromagnetic fields A80-21017
resistance: Operational aspects N80-15808 Sleep disturbance and performance Circadian rhythms in air operations Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLERANCES The physiological basis for spacecraft environmental limits [NASA-RP-1045] Atmosphere physiological basis for spacecraft pressure tolerance limits Sound and noise in spacecraft Radiofrequency radiation spacecraft environmental limits	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [N80-15779] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 INDICATING INSTRUMENTS Preliminary investigation of pilot scanning techniques of dial pointing instruments [N80-14697] IMDUSTRIAL SAPETY Cccupational exposure to radio-frequency electromagnetic fields A80-21017
resistance: Operational aspects N80-15808 Sleep disturbance and performance Circadian rhythms in air operations Hypnotics and the management of disturbed sleep N80-15818 Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLERANCES The physiological basis for spacecraft environmental limits (NASA-RP-1045) Atmosphere physiological basis for spacecraft pressure tolerance limits N80-15788 Sound and noise in spacecraft Radiofrequency radiation spacecraft environmental limits N80-15793 Radiofrequency radiation spacecraft environmental limits	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 IMDICATING INSTRUMENTS Preliminary investigation of pilot scanning techniques of dial pointing instruments [NASA-TM-80079] INDUSTRIAL SAPETY Cocupational exposure to radio-frequency electromagnetic fields A80-21017 IMPECTIOUS DISEASES The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight
resistance: Operational aspects N80-15808 Sleep disturbance and performance Circadian rhythms in air operations Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLERANCES The physiological basis for spacecraft environmental limits [NASA-RP-1045] Atmosphere physiological basis for spacecraft pressure tolerance limits Sound and noise in spacecraft Radiofrequency radiation spacecraft environmental limits Radiofrequency radiation spacecraft environmental limits N80-15794 HYDROCARBONS Synthesis and biological screening by novel hybrid	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 INDICATING INSTRUMENTS Preliminary investigation of pilot scanning techniques of dial pointing instruments [NASA-TM-80079] IMPUSTRIAL SAPETY Occupational exposure to radio-frequency electromagnetic fields A80-21017 IMPECTIOUS DISEASES The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973]
resistance: Operational aspects N80-15808 Sleep disturbance and performance Circadian rhythms in air operations N80-15816 Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLERANCES The physiological basis for spacecraft environmental limits [NASA-RP-1045] Atmosphere physiological basis for spacecraft pressure tolerance limits Sound and noise in spacecraft Radiofrequency radiation spacecraft environmental limits N80-15789 Radiofrequency radiation spacecraft environmental limits N80-15794 HYDROCARBONS Synthesis and biological screening by novel hybrid fluorocarbon hydrocarbon compounds for use as	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 INDICATING INSTRUMENTS Preliminary investigation of pilot scanning techniques of dial pointing instruments [NASA-TM-80079] IMDUSTRIAL SAPETY Cocupational exposure to radio-frequency electromagnetic fields A80-21017 INFECTIOUS DISEASES The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] INFERENCE
resistance: Operational aspects N80-15808 Sleep disturbance and performance Circadian rhythms in air operations N80-15816 Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLERANCES The physiological basis for spacecraft environmental limits [NASA-RP-1045] Atmosphere physiological basis for spacecraft pressure tolerance limits N80-15788 Sound and noise in spacecraft Radiofrequency radiation spacecraft environmental limits N80-15794 HYDROCARBONS Synthesis and biological screening by novel hybrid fluorocarbon hydrocarbon compounds for use as artificial blood substitutes	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 IMDICATING INSTRUMENTS Preliminary investigation of pilot scanning techniques of dial pointing instruments [NASA-TM-80079] INDUSTRIAL SAPETY Cocupational exposure to radio-frequency electromagnetic fields A80-21017 IMPECTIOUS DISEASES The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPERRICE Subjective versus statistical importance weights.
Sleep disturbance and performance Circadian rhythms in air operations Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLEBANCES The physiological basis for spacecraft environmental limits [NASA-RP-1045] Atmosphere physiological basis for spacecraft pressure tolerance limits N80-15789 Sound and noise in spacecraft environmental limits N80-15799 Radiofrequency radiation spacecraft environmental limits N80-15793 Radiofrequency radiation spacecraft environmental limits N80-15794 HYDROCARBONS Synthesis and biological screening by novel hybrid fluorocarbon hydrocarbon compounds for use as artificial blood substitutes [NASA-CR-162537]	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 INDICATING INSTRUMENTS Preliminary investigation of pilot scanning techniques of dial pointing instruments [NASA-TM-80079] IMDUSTRIAL SAPETY Cocupational exposure to radio-frequency electromagnetic fields A80-21017 INFECTIOUS DISEASES The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] INFERENCE
Resistance: Operational aspects Sleep disturbance and performance Circadian rhythms in air operations Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLERANCES The physiological basis for spacecraft environmental limits [NASA-RP-1045] Atmosphere physiological basis for spacecraft pressure tolerance limits Sound and noise in spacecraft Radiofrequency radiation spacecraft environmental limits N80-15789 HYDROCARBONS Synthesis and biological screening by novel hybrid fluorocarbon hydrocarbon compounds for use as artificial blood substitutes [N80-14689] HYPRBBARIC CHAMBERS	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 IMDICATING INSTRUMENTS Preliminary investigation of pilot scanning techniques of dial pointing instruments [NASA-TM-80079] INDUSTRIAL SAPETY Occupational exposure to radio-frequency electromagnetic fields A80-21017 IMPECTIOUS DISEASES The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPERRICE Subjective versus statistical importance weights. A criterion validation [AD-A073367] INSONNIA
Sleep disturbance and performance N80-15818 Circadian rhythms in air operations Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLERANCES The physiological basis for spacecraft environmental limits [NASA-RP-1045] Atmosphere physiological basis for spacecraft pressure tolerance limits Sound and noise in spacecraft environmental limits Radio frequency radiation spacecraft environmental limits N80-15789 Radio frequency radiation spacecraft environmental limits N80-15794 HYDROCARBONS Synthesis and biological screening by novel hybrid fluorocarbon hydrocarbon compounds for use as artificial blood substitutes [N83-CR-162537] HYPERBARIC CHAMBERS Perspectives of the utilization of hyperbaric oxygenation in aviation medicine	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NSO-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 INDICATING INSTRUMENTS Preliminary investigation of pilot scanning techniques of dial pointing instruments [NASA-TM-80079] INDUSTRIAL SAFETY Occupational exposure to radio-frequency electromagnetic fields A80-21017 INFECTIOUS DISEASES The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] INFERENCE Subjective versus statistical importance weights. A criterion validation [AD-A073367] INSONTIAL Sleep disturbances in humans
Sleep disturbance and performance Circadian rhythms in air operations Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLERANCES The physiological basis for spacecraft environmental limits [NASA-RP-1045] Atmosphere physiological basis for spacecraft pressure tolerance limits Sound and noise in spacecraft environmental limits N80-15789 Sound and noise in spacecraft environmental limits N80-15794 HYDROCARBONS Synthesis and biological screening by novel hybrid fluorocarbon hydrocarbon compounds for use as artificial blood substitutes [NASA-CR-162537] HYPERBARIC CHAMBERS Perspectives of the utilization of hyperbaric oxygenation in aviation medicine	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 INDICATING INSTRUMENTS Preliminary investigation of pilot scanning techniques of dial pointing instruments [NASA-TM-80079] INDUSTRIAL SAPRTY Cocupational exposure to radio-frequency electromagnetic fields A80-21017 INFECTIOUS DISEASES The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] INFERENCE Subjective versus statistical importance weights. A criterion validation [AD-A073367] INSOMNIA Sleep disturbances in humans
Sleep disturbance and performance Circadian rhythms in air operations Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLERANCES The physiological basis for spacecraft environmental limits [NASA-RP-1045] Atmosphere physiological basis for spacecraft pressure tolerance limits Sound and noise in spacecraft environmental limits Radiofrequency radiation spacecraft environmental limits N80-15789 Radiofrequency radiation spacecraft environmental limits N80-15793 Radiofrequency radiation spacecraft environmental limits N80-15794 HYDROCARBONS Synthesis and biological screening by novel hybrid fluorocarbon hydrocarbon compounds for use as artificial blood substitutes [NASA-CR-162537] HYPERBARIC CHAMBERS Perspectives of the utilization of hyperbaric oxygenation in aviation medicine HYPODYNAMIA	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 INDICATING INSTRUMENTS Preliminary investigation of pilot scanning techniques of dial pointing instruments [NASA-TM-80079] IMPUSTRIAL SAPETY Occupational exposure to radio-frequency electromagnetic fields A80-21017 IMPECTIOUS DISEASES The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] INPERBNCE Subjective versus statistical importance weights. A criterion validation [AD-A073367] INSOMNIA Sleep disturbances in humans N80-15810
Sleep disturbance and performance N80-15818 Circadian rhythms in air operations Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLERANCES The physiological basis for spacecraft environmental limits [NASA-RP-1045] Atmosphere physiological basis for spacecraft pressure tolerance limits Sound and noise in spacecraft Radiofrequency radiation spacecraft environmental limits N80-15789 Radiofrequency radiation spacecraft environmental limits N80-15793 HYDROCARBONS Synthesis and biological screening by novel hybrid fluorocarbon hydrocarbon compounds for use as artificial blood substitutes [NASA-CR-162537] HYPERBARIC CHAMBERS Perspectives of the utilization of hyperbaric oxygenation in aviation medicine A80-20500 HYPODYNAMIA PNA CONTENT in motor and sensory neurons and	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 INDICATING INSTRUMENTS Preliminary investigation of pilot scanning techniques of dial pointing instruments [NASA-TM-80079] INDUSTRIAL SAPETY Cocupational exposure to radio-frequency electromagnetic fields A80-21017 INFECTIOUS DISEASES The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPERENCE Subjective versus statistical importance weights. A criterion validation [AD-A073367] INSOMNIA Sleep disturbances in humans N80-15810 INTRACCULAR PRESSURE Intra-occular pressure normalization technique and equipment
Sleep disturbance and performance N80-15814 Circadian rhythms in air operations Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLERANCES The physiological basis for spacecraft environmental limits [NASA-RP-1045] Atmosphere physiological basis for spacecraft pressure tolerance limits Sound and noise in spacecraft Radiofrequency radiation spacecraft environmental limits N80-15789 HYDROCARBONS Synthesis and biological screening by novel hybrid fluorocarbon hydrocarbon compounds for use as artificial blood substitutes [NASA-CR-162537] HYPERBARIC CHAMBERS Perspectives of the utilization of hyperbaric oxygenation in aviation medicine HYPODYNAMIA RNA content in motor and sensory neurons and surrounding neuroulia of mouse spinal cord under	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 INDICATING INSTRUMENTS Preliminary investigation of pilot scanning techniques of dial pointing instruments [NASA-TM-80079] INDUSTRIAL SAPETY Cocupational exposure to radio-frequency electromagnetic fields A80-21017 INPECTIOUS DISEASES The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPERRNCE Subjective versus statistical importance weights. A criterion validation [AD-A073367] INSOHNIA Sleep disturbances in humans N80-15810 INTRAOCULAR PRESSURE Intra-ocular pressure normalization technique and equipment [NASA-CASE-LEW-12955-1] N80-14684
Sleep disturbance and performance Circadian rhythms in air operations Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLERANCES The physiological basis for spacecraft environmental limits (NASA-RP-1045) Atmosphere physiological basis for spacecraft pressure tolerance limits N80-15789 Sound and noise in spacecraft environmental limits N80-15793 Radiofrequency radiation spacecraft environmental limits N80-15793 HYDROCARBONS Synthesis and biological screening by novel hybrid fluorocarbon hydrocarbon compounds for use as artificial blood substitutes [NASA-CR-162537] HYPERBARIC CHAMBERS Perspectives of the utilization of hyperbaric oxygenation in aviation medicine HYPODYNAMIA RNA content in motor and sensory neurons and surrounding neuroglia of mouse spinal cord under conditions of hypodynamia and following normalization	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NSOA-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 INDICATING INSTRUMENTS Preliminary investigation of pilot scanning techniques of dial pointing instruments [NASA-TM-80079] IMPUSTRIAL SAFETY Occupational exposure to radio-frequency electromagnetic fields A80-21017 IMPECTIOUS DISEASES The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPERENCE Subjective versus statistical importance weights. A criterion validation [AD-A073367] INSOHNIA Sleep disturbances in humans N80-15810 INTRAOCULAR PRESSURE Intra-ocular pressure normalization technique and equipment [NASA-CASE-LEW-12955-1] INSO-14684 TON EXCHANGE RESINS
Sleep disturbance and performance N80-15814 Circadian rhythms in air operations Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLERANCES The physiological basis for spacecraft environmental limits [NASA-RP-1045] Atmosphere physiological basis for spacecraft pressure tolerance limits Sound and noise in spacecraft Radiofrequency radiation spacecraft environmental limits N80-15789 HYDROCARBONS Synthesis and biological screening by novel hybrid fluorocarbon hydrocarbon compounds for use as artificial blood substitutes [NASA-CR-162537] HYPERBARIC CHAMBERS Perspectives of the utilization of hyperbaric oxygenation in aviation medicine HYPODYNAMIA RNA content in motor and sensory neurons and surrounding neuroglia of mouse spinal cord under conditions of hypodynamia and following normalization [NASA-TH-75983] N80-14672	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 INDICATING INSTRUMENTS Preliminary investigation of pilot scanning techniques of dial pointing instruments [NASA-TM-80079] INDUSTRIAL SAPETY Cocupational exposure to radio-frequency electromagnetic fields A80-21017 IMPECTIOUS DISPASES The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPERENCE Subjective versus statistical importance weights. A criterion validation [AD-A073367] INSOHNIA Sleep disturbances in humans N80-15810 INTRAOCULAR PRESSURE Intra-ocular pressure normalization technique and equipment [NASA-CASE-LEW-12955-1] N80-14684 ION EXCHANGE RESINS Dialysis system using ion exchange resin
Sleep disturbance and performance Circadian rhythms in air operations Hypnotics and the management of disturbed sleep N80-15818 HUMAN REACTIONS Biological rhythms of man living in isolation from time cues N80-15813 HUMAN TOLERANCES The physiological basis for spacecraft environmental limits (NASA-RP-1045) Atmosphere physiological basis for spacecraft pressure tolerance limits N80-15789 Sound and noise in spacecraft environmental limits N80-15793 Radiofrequency radiation spacecraft environmental limits N80-15793 HYDROCARBONS Synthesis and biological screening by novel hybrid fluorocarbon hydrocarbon compounds for use as artificial blood substitutes [NASA-CR-162537] HYPERBARIC CHAMBERS Perspectives of the utilization of hyperbaric oxygenation in aviation medicine HYPODYNAMIA RNA content in motor and sensory neurons and surrounding neuroglia of mouse spinal cord under conditions of hypodynamia and following normalization	Theoretical problems in modeling color grating detection in human vision A80-20861 IMMUNOLOGY The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NSOA-TM-75973] IMPACT RESISTANCE Physical forces generating acceleration, vibration, and impact physiological effects N80-15792 INDICATING INSTRUMENTS Preliminary investigation of pilot scanning techniques of dial pointing instruments [NASA-TM-80079] IMPUSTRIAL SAFETY Occupational exposure to radio-frequency electromagnetic fields A80-21017 IMPECTIOUS DISEASES The course of experimental staphylococcus infection in albino mice during action of certain factors of space flight [NASA-TM-75973] IMPERENCE Subjective versus statistical importance weights. A criterion validation [AD-A073367] INSOHNIA Sleep disturbances in humans N80-15810 INTRAOCULAR PRESSURE Intra-ocular pressure normalization technique and equipment [NASA-CASE-LEW-12955-1] INSO-14684 TON EXCHANGE RESINS

SUBJECT INDEX SERBRANES

ION PUMPS			
Proton movements in response to a light-	driven	M	
electrogenic pump for sodium ions in Halobacterium halobium membranes		MAGNETIC FIELDS	
nalobacterium nalobium membranes	A80-17686	Steady magnetic fields in noninvasive	
ION SELECTIVE ELECTRODES		electromagnetic flowmetry	
Investigation of effects of temperature, and electrode design on the performance		MALES	A80-21033
electrochemical coliform detector	e or an	A consideration of factors contributing	to
[NASA-TM-80130]	N8Ó-14676	strength differences in men and women	
IONIZING RADIATION Early transient incapacitation: A revie	u with	[AD-A072671] HAN MACHINE SYSTEMS	N80-14694
consideration of underlying mechanisms		A new engineering approach to motion cue	ina
[AD-A071803]	N80-14693	technology for flight simulation	_
ISOMERS A mathematical model of the disruption o	f mirror	[ATAA PAPER 80-0047] Mathematical concepts for modeling human	A80-18250
symmetry in prebiological evolution	L MILLOI	in complex man-machine systems	Deligator
	A80-20680		A80-19025
1		A nonparametric model of detection of si observed by a human operator on a CRT	gnals,
J		the presence of noise	screen in
JOINTS (JUNCTIONS)	- 1		A80-19452
Measurement of resistive torques in majo joints	r naman	Sleep and body rhythm disturbance in lon aviation. The problem and a search for	g-range or relief
[AD-A071170]	N80-14695		N80-14714
JUDGMENTS Validation and error in multiplicative u	+:1:+=	Technologies for the handicapped and the	
functions	clifty	[NASA-TM-80842] Time simulation of an air surveillance t	N80-14715
[AD-A073362]	N80-14698	varying amounts of radar information	
Importance weight assessment for additive riskless preference functions: A revi		[AD-A074866] Some insights relative to the man-machin	N80-14722
[AD-A073365]	N80-14700	An overview of ten years of research	e system:
Are important weights sensitive to the r			N80-14745
alternatives in multiattribute utility [AD-A073366]	measurement N80-14701	Model task for the dynamics of an underw two-legged walker	ater
Subjective versus statistical importance		[NASA-TM-75697]	N80-15822
A criterion validation	NOO 14700	Man-machine communication in computer-ai	ded remote
[AD-A073367]	N80-14702	manipulation [AD-A074566]	N80-15823
K		Teleoperators under the sea	
KERNEL PUNCTIONS		[PB-299883/9] MANIPULATORS	N80-15824
Interpreting nonlinear systems - The thi	rd order	Man-machine communication in computer-ai	ded remote
kernel of the eye movement control sys	tem	manipulation	
	A80-20860	[AD-A074566] MANNED SPACE PLIGHT	N80-15823
ř		Biology and medicine in space: Pesearch	
LAGOONS		opportunities offered by Spacelab. An	
Waste stabilization lagoon microorganism	removal	invitation to European investigators [ESA-BR-01]	N80-14677
efficiency and effluent disinfection w	ith chlorine	Pesults of medical studies during long-t	erm manned
[PB-300631/9] LEARNING	N80-15786	flights on the orbital Salyut-6 and So [NASA-TM-76014]	yuz complex N80-15797
Rule learning and systematic instruction	in pilot	HATHEMATICAL HODELS	100-13737
training	700 44 700	Mathematical concepts for modeling human	behavior
[AD-A068906] LEGIBILITY	N80-14709	in complex man-machine systems	A80-19025
The effect of character size on the legi		A mathematical model of the disruption o	
numeric displays during vertical whole vibration	-body	symmetry in prebiological evolution	100 20600
VIDEACTOR	A80-18839	Modeling and simulation. Volume 10 - Pro	A80-20680 ceedings
LIPE SUPPORT SYSTEMS		of the Tenth Annual Pittsburgh Confere	nce,
Anthropometric sizing, fit-testing and e of the MBU-12/P oral-masal oxygen mask		University of Pittsburgh, Pittsburgh, 25-27, 1979. Part 1 - Biomedical	Pa., April
[AD-A074723]	N80-14692	23 27, 1373. Idit Diometical	A80-20855
Biological systems for human life suppor	t: Review	Validation and error in multiplicative u	tility
of the research in the USSR [NASA-TM-76018]	N80-14717	functions [AD-A073362]	N80-14698
US aircrew chemical defense assemblies		Process model of how the human operator	
LIPOPROTEINS	N80-14736	discontinuous inputs	NOO 10712
Serum cholesterol levels in selected Air	Force	[AD-A069001] Quantitative military workload analysis	N80-14712
cadets compared with levels in the Wes	t Point		N80-14748
study	A80-20442	Mental dynamics mathematical descrip	tion N80-15820
LOGIC		MEASURING INSTRUMENTS	100-13020
A mind/brain/matter model consistent with	h quantum	Three instruments for assessment of WBGT	and a
physics and UPO phenomena [AD-A068988]	N80-14711	comparison with WGT (BOTSBALL) [AD-A074979]	N80-14691
LYMPH		MEDICAL ELECTRONICS	
Effect of hypoxia on the contractile act:		Polycardiographic research with a single	-channel
smooth muscle cells in the thoracic due	A80-20683	electrocardiograph	A80-20213
LYMPHOCYTES		MEMBRANES	
Effect of hypogravity on human lymphocyte	e activation A80-20446	Dialysis system using ion exchange r membranes permeable to urea molecules	esin
	20.70	[NASA-CASE-NPO-14101-1]	N80-14687

MENTAL PERFORMANCE SUBJECT INDEX

MENTAL PERFORMANCE	A sudden-stop vestibulovisual test for rapid
Effect of peripherally presented visual signals on	assessment of motion sickness manifestations
pilot performance during flight simulation	A80-20444 Motion sickness. I - A theory. II - A clinical
[AD-A073604] N80-14703	study based on surgery of cerebral hemisphere
Mental dynamics mathematical description 113-7946-MS1 N80-15820	lesions. III - A clinical study based on surgery
[LA-7946-NS] N80-15820 NICE	of posterior fossa tumors
Review of cell aging in Drosophila and mouse	A80-20452
A80-17741	HOTIVATION
HICROBIOLOGY	A study in procedural manipulation of locus of
Study of fungal phenotypes after exposure to space	control [AD-A068658] N80-14704
flight parameters	Work performance as a function of the interaction
MICROORGANISMS	of ability, work values, and the perceived work
Study of fungal phenotypes after exposure to space	environment
flight parameters	[AD-A068893] N80-14707
A80-17986	HOTOR VEHICLES Motor Vehicle Manufacturers Association (MVMA)
Microbial colonization of materials at Innisfail, Oueensland	Two-Dimensional Crash Victim Simulation tutorial
(MRITN-428] N80-14670	system: Self-study guide
Waste stabilization lagoon microorganism removal	[PB-299256/8] N80-14723
efficiency and effluent disinfection with chlorine	Motor Vehicle Manufacturers Association (MVMA)
[PB-300631/9] N80-15786	Two-Dimensional Crash Victim Simulation tutorial system: Audio-visual program
MICROWAVES Microwave biological effects - An overview	[PB-299257/6] N80-14724
A80-21021	MVMA Two-Dimensional Crash Victim Simulation,
Microwave cataractogenesis	version 4, volume 1
A80-21022	[PB+299305/3] N80-14725
Microwave irradiation and the blood-brain barrier	MVMA Two-Dimensional Crash Victim Simulation, version 4, volume 2
A80-21023 The microwave auditory phenomenon	[PB-299306/1] N80-14726
A80-21024	NVMA Two-Dimensional Crash Victim Simulation,
Advances in microwave-induced neuroendocrine	version 4, volume 3
effects - The concept of stress	[PB-299307/9] N80-14727
A80-21025	MUSCULAR FUNCTION Effect of hypoxia on the contractile activity of
Epidemiologic studies of microwave effects A80+21026	smooth muscle cells in the thoracic duct
Soviet and Eastern European research on biological	A80-20683
effects of microwave radiation	MUSCULAR STRENGTH
A80-21027	A consideration of factors contributing to
Electromagnetic fields in biological media. Part	strength differences in men and women [AD-A072671] N80-14694
2: The SCAT program, multilayered sphere,	[AD-A072671] N80-14694 HUSCULAR TOHUS
theory and applications [PB-300904/0] N80-15804	Physiological regulation of oxygen transport to
HIDDLE EAR PRESSURE	muscles /from results of mathematical analysis
Static acoustic impedance profiles in auditory	of experimental data/ A80-18081
diagnosis rasme paper 79-WA/BTO-13 A80-18643	HYOCARDIUM
[ASME PAPER 79-WA/BIO-1] A80-18643 Bustachian tube function in selection of airmen	Left ventricular relaxation and filling pattern in
A80-20443	different forms of left ventricular hypertrophy
MILITARY OPERATIONS	- An echocardiographic study A80-18975
Maintenance of air operations while under attack	ROU-10973
with chemical agents protective clothing [AGARD-CP-264-SUPPL] N80-14728	N
[AGARD-CP-264-SUPPL] N80-14/28 Concerning individual equipment for fighter pilots	IX
in the Air Force	NERVOUS SYSTEM
N80-14735	Micromorphology of neurohypophysis of rats under
Quantitative military workload analysis	experimental conditions [NASA-TM-75947] N80-14671
N80-14748 Management of irregular rest and activity	HEUROGLI A
N80-15819	RNA content in motor and sensory neurons and
MILLIMETER WAVES	surrounding neuroglia of mouse spinal cord under
Cellular effects: Millimeter waves and Raman	conditions of hypodynamia and following
spectra - Report of a panel discussion A80-21031	normalization [NASA-TH-75983] N80-14672
HINERAL HETABOLISH	NEUROLOGY
Effect of 1 alpha-hydroxy-cholecalciferol and	Psychostimulants
varying phosphorous content in the diet on	N80-15817
calcium phosphorous metabolism in hypokinetic rats	BEUROMUSCULAR TRANSMISSION
A80-20445	The effects of acute and chronic low dose exposure to anticholinesterases
MIOSIS The effect of locally applied organophosphates on	N80-14729
miosis and acetylcholinesterase adaptation to	Therapy on nerve agent poisoning
chronic treatment	N80-14732
N80-14731	Activity of cholinesterases of blood and heart in rats of different sex and age during muscular
MISSION PLANNING	loads and hypokinesia
Management of irregular rest and activity N80-15819	[NASA-TH-75951] N80-15781
HONITORS	Study on the neuronal circuits implicated in
Psychophysiological monitoring of operator's	postural tremor and hypokinesia
emotional stress in aviation and astronautics	[NASA-TH-76004] N80-15783
MOTION PERCEPTION	NEURONS Visual cortical neurons - Are bars or gratings the
A new engineering approach to motion cueing	optimal stimuli
technology for flight simulation	A80-17711
[AIAA PAPER 80-0047] A80-18250	Topographic characteristics of post-synaptic
MOTION SICKNESS	actions of primary vestibular fibers on the vestibulospinal neurons of Deiters nucleus
Space motion sickness A80-20018	A80-20681

SUBJECT INDEX PERSONNEL SELECTION

Deiters-nucleus potentials evoked by stimulation of the neural elements of bones and Process model of how the human operator tracks discontinuous inputs [AD-A069001] musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed ORGANIC MATERIALS Microbial colonization of materials at Innisfail, Theoretical problems in modeling color grating Queensland [MRL-TN-428]
ORGANIC PHOSPHORUS COMPOUNDS detection --- in human vision The effect of locally applied organophosphates on miosis and acetylcholinesterase adaptation to Topographic characteristics of post-synaptic actions of primary vestibular fibers on the vestibulospinal neurons of Deiters nucleus chronic treatment A80-20681 ORTHOSTATIC TOLERANCE Deiters-nucleus potentials evoked by stimulation of the neural elements of bones and musculo-cutaneous nerves in animals with the The effect of antiorthostatic stimuli on human operators studied using rheography data 180-20082 cerebrum and cerebellum removed A80-20682 Kinematic analysis of osmotic processes under Nonlinear interactions in binocular vision non-equilibrium conditions A80-20859 N80-14669 Advances in microwave-induced neuroendocrine effects - The concept of stress OSTROPOROSIS Bone remodeling in centrifuged rats -A80-21025 Histomorphometric study after an 18-day run Study on the neuronal circuits implicated in A80-20450 postural tremor and hypokinesia [NASA-TM-76004] N80-15783 Static acoustic impedance profiles in auditory Sleep stage organization: Neuro endocrine relations diagnosis N80-15809 [ASME PAPER 79-WA/BIO-1] NIGHT VISION OXYGEN CONSUMPTION The effect of age and vitamin provision of pilots on their night vision characteristics Physiological regulation of oxygen transport to muscles /from results of mathematical analysis of experimental data/ A80-21040 NITROGEN METABOLISM A study of metabolic balance in crewmembers of Skylab IV OXYGEN MASKS Anthropometric sizing, fit-testing and evaluation of the MBU-12/P oral-nasal oxygen mask
[AD-A074723] N80-1469 A80-20021 NOISE (SOUND)

Derivation of presbycusis and Noise Induced

Threshold Shift (NIPTS) to be used for OXYGEN SUPPLY EQUIPMENT An advanced oxygen system for future combat aircraft the basis of a standard on the effects of noise OXYGENATION on hearing [AD-A071310] Perspectives of the utilization of hyperbaric oxygenation in aviation medicine N80-14690 Sound and noise --- in spacecraft N80-15793 A80-20500 NOISE INTENSITY OZONE Combined effects of broadband noise and complex The interaction of ozone with the human erythrocyte waveform vibration on cognitive performance - biological effects of photochemical oxidants A80-20041 N80-14686 Combined effects of broadband noise and complex P waveform vibration on cognitive performance A80-20441 Evoked potentials in immobilized cats to a combination of clicks with painful NONEQUILIBRIUM CONDITIONS Kinematic analysis of osmotic processes under non-equilibrium conditions electrocutaneous stimuli N80-14669 [NASA-TM-75941] N80-15780 PERCEPTION Nonlinear interactions in binocular vision A mind/brain/matter model consistent with quantum physics and TFO phenomena [AD-A068988] A80-20859 Interpreting nonlinear systems - The third order kernel of the eye movement control system N80-14711 PERFORMANCE PREDICTION A80-20860 Ability, involvement and climate as multiple and NUMERICAL ANALYSIS interactive predictors of performance Electromagnetic dosimetry for models of humans and animals - A review of theoretical and numerical FAD-A068891] N80-14706 Work performance as a function of the interaction of ability, work values, and the perceived work environment techniques A80-21020 [AD-A0688931 N80-14707 PERIPHERAL VISION O Effect of peripherally presented visual signals on pilot performance during flight simulation [AD-A073604] OLFACTORY PERCEPTION Relationship among the 55 Hz bioelectric rhythm of the olfactory bulb, the bulb S-rhythm, and N80-14703 PERMEABILITY respiration Dialysis system --- using ion exchange resin membranes permeable to urea molecules [NASA-CASE-NPO-14101-1] OPERATOR PERFORMANCE N80-14687 A nonparametric model of detection of signals, observed by a human operator on a CRT screen in PERSONNEL Occupational exposure to radio-frequency the presence of noise electromagnetic fields A80-19452 A80-21017 The effect of antiorthostatic stimuli on human PERSONNEL SPLECTION Problems related to medical criteria for the selection of military navigation personnel operators studied using rheography data ABO-20082 Combined effects of broadband noise and complex N80-14679 waveform vibration on cognitive performance The European approach to the selection and A80-20441 training of SL payload specialists Psychophysiological monitoring of operator's N80-14681 emotional stress in aviation and astronautics

A80-20449

PHOS PHORUS SUBJECT INDEX

PHOS PHORUS	The effects of acute and chronic low dose exposure
Effect of 1 alpha-hydroxy-cholecalciferol and	to anticholinesterases
varying phosphorous content in the diet on	N80-14729
calcium phosphorous metabolism in hypokinetic rats	Workload and stress in air traffic controllers
A80-20445	N80-14757
PROSPHORUS METABOLISM	Influence of hypokinesis on physiological
Hormonal regulation of calcium and phosphorus	functions in fowl
homeostasis during physical activity	[NASA-TM-75999] N80-15778
A80-20684	The course of experimental staphylococcus
PHOTOABSORPTION	infection in albino mice during action of
Energy uptake in the first step of visual excitation	certain factors of space flight
A80-20387	[NASA-TM-75973] N80-15779
PHOTOCHEBICAL OXIDANTS	Rat reaction to hypokinesia after prior adaptation
The interaction of ozone with the human erythrocyte	to hypoxia [NASA-TM-75964] N80-15782
biological effects of photochemical oxidants N80-14686	The physiological basis for spacecraft
	environmental limits
PHOTOCHEMICAL REACTIONS Energy uptake in the first step of visual excitation	[NASA-RP-1045] N80-15788
A80-20387	Atmosphere physiological basis for spacecraft
PHOTOSENSITIVITY	pressure tolerance limits
Visual cortical neurons - Are bars or gratings the	N80-15789
optimal stimuli	Contaminants physiological effects of
A80-17711	spacecraft contaminants
Effect of rhythmic photostimulation on monkeys	N80-15790
with hyperkinesis of post-encephalitic genesis	Thermal environment physiological basis for
[NASA-TM-75986] N80-14674	temperature tolerance limits
PHOTOSYNTHESIS	N80-15791
Charge separation in synthetic photo-reaction	Weightlessness physiological effects
centers	N80-15795
[CONF-781048-1] N80-15784	Changes of some blood indices and myocardial
PHYSICAL EXAMINATIONS	electrolyte content during hypokinesia
Serum cholesterol levels in selected Air Force	[NASA-TM-75954] N80-15798
cadets compared with levels in the West Foint	PHYSIOLOGICAL PACTORS
study	Physiological regulation of oxygen transport to
A80-20442	muscles /from results of mathematical analysis
PHYSICAL EXERCISE	of experimental data/
Quantitative study of free amino acids in human	
eccrine sweat excreted from the forearms of	Physiological factors in space operations. Emphasis on space shuttle
healthy trained and untrained men during exercise A80-17727	180-14682
Body temperature and heart rate relationships	A consideration of factors contributing to
during submaximal bicycle ergometer exercises	strength differences in men and women
A80-17728	[AD-A072671] N80-14694
Exercise response to simulated weightlessness	Physiologic aspects of workload/fatigue/stress
A80-20019	N80-14744
Development of 'sports anemia' in physically fit	PHYSIOLOGICAL RESPONSES
men after daily sustained submaximal exercise	Visual cortical neurons - Are bars or gratings the
A80-20448	optimal stimuli
PHYSICAL PITNESS	A80-17711
Development of 'sports anemia' in physically fit	The effect of antiorthostatic stimuli on human
men after daily sustained submaximal exercise	operators studied using rheography data \$80-20082
A80-20448	Development of 'sports anemia' in physically fit
Methods for evaluating the physical and effort requirements of Navy tasks: Metabolic,	men after daily sustained submaximal exercise
performance, and physical ability correlates of	180-20448
perceived effort	The microwave auditory phenomenon
[AD-A072497] N80-14720	A80-21024
PHYSIOLOGICAL EFFECTS	Advances in microwave-induced neuroendocrine
Combined effects of broadband noise and complex	effects - The concept of stress
waveform vibration on cognitive performance	A80-21025
A80-20441	Circadian rhythms in air operations
Eustachian tube function in selection of airmen	N80-15816
A80-20443	PHYSIOLOGICAL TESTS
Effect of 1 alpha-hydroxy-cholecalciferol and	Evaluation of human strain during interrupted
varying phosphorous content in the diet on	exposure to vibration
calcium phosphorous metabolism in hypokinetic rats	A80-17726
A80-20445	Practical criteria for analyzing the heart
Effect of hypogravity on human lymphocyte activation	hemodynamics of young athletes A80-20212
A80-20446	Polycardiographic research with a single-channel
Bone remodeling in centrifuged rats - Histomorphometric study after an 18-day run	electrocardiograph
A80-20450	A80-20213
Heat stress exposure of aerial spray pilots	Simulation of physiological systems in order to
A80-20451	evaluate and predict the human condition in a
Microwave irradiation and the blood-brain barrier	space flight
A80-21023	[NASA-TM-76016] N80-14716
Frequency and power windowing in tissue	PHYSIOLOGY
interactions with weak electromagnetic fields	acthods for evaluating the physical and effort
A80-21032	requirements of Navy tasks: Metabolic,
The effect of aircraft noise on the functional	performance, and physical ability correlates of
state of human operators	perceived effort
A80-21039	[AD-A072497] N80-14720 Activity of cholinesterases of blood and heart in
The effects of hypodynamia and hypokinesia on the arterial bed of pelvic limb muscles in the rabbit	
arretial neo or pervic ilmp muscles in the rappit	
	rats of different sex and age during muscular
[NASA-TM-75984] N80-14673	rats of different sex and age during muscular loads and hypokinesia
[NASA-TM-75984] N80-14673 Early transient incapacitation: A review with	rats of different sex and age during muscular loads and hypokinesia
[NASA-TM-75984] N80-14673	rats of different sex and age during muscular loads and hypokinesia

SUBJECT INDEX PSYCHOLOGICAL EFFECTS

PILOT PERFORMANCE	POLLUTION CONTROL
Proficiency maintenance and assessment in an	Biological screening of complex samples from
instrument flight simulator	industrial/energy processes
A80-19023	[PB-300459/5] N80-15805
Psychophysiological monitoring of operator's	POLLUTION MONITORING
emotional stress in aviation and astronautics	Investigation of effects of temperature, salinity,
Nost Stress expense of social error silete	and electrode design on the performance of an
Heat stress exposure of aerial spray pilots A80-20451	electrochemical coliform detector
The effect of age and vitamin provision of pilots	[NASA-TM-80130] N80-14676 POLYPEPTIDES
on their night vision characteristics	The informational structure of DNA, RNA, and amino
A80-21040	acid sequences
Effect of peripherally presented visual signals on	A80-20856
pilot performance during flight simulation	Information processes in the evolution of protein
[AD-A073604] N80-14703	synthesis
Survey of methods to assess workload	A80-20857
[AGARD-AG-246] N80-14739	Toxic polypeptides and uremia
Concepts of workload study of work capacity	[PB-301063/4] N80-15803
and pilot performance in terms of physiological and psychological stress	PORTABLE LIFE SUPPORT SYSTEMS
N80-14740	Regenerative CO2 removal for PLSS application [NASA-CR-160419] N80-14718
Concepts of fatigue survey of studies on pilot	PRESERVING
performance and flight fatigue discussed in	A controlled rate freeze/thaw system for
terms of physiological and psychological stress	cryopreservation of biological materials
N90-14741	[NASA-CR-162531] N80-14675
Some considerations concerning methods to evaluate	PRESSURE BREATHING
and assess workload in aircraft pilots	An advanced oxygen system for future combat aircraft
N80-14743 Some insights relative to the man-machine system:	PRESSURE EFFECTS N80-14680
An overview of ten years of research	Pustachian tube function in selection of airmen
N80-14745	A80-20443
Aircrew workload assessment techniques human	PRESSURE REGULATORS
factors engineering study of performance of	Intra-ocular pressure normalization technique and
flight crews workloads	equipment
N80-14746	[NASA-CASE-LEW-12955-1] N80-14684
Norkload assessment methodology development M80-14747	PRESSURIZED CABINS Atmosphere physiological basis for spacecraft
Visual performance: A method to assess workload	pressure tolerance limits
in the flight environment	N80-15789
N80-14749	PRODUCTIVITY
Handling qualities, workload and heart rate	Comparison of diurnal fluctuations of dissolved
N80-14750	inorganic carbon and algal productivity
Brain waves and the enhancement of pilot performance N80-14751	estimates in an oligotrophic and mesotrophic freshwater environment
Pupillometric methods of workload evaluation:	[PB-301201/0] N80-15785
Present status and future possibilities	PROPHYLAXIS
pilot workload	Consideration of pyridostigmine as a prophylactic
N80-14752	agent for aircrew
Aircrew performance research opportunities using the Air Combat Maneuvering Range (ACMR)	N80-14730
N80-14753	PROTECTION Philosophy of protection of US singapore assists
Speech patterns and aircrew workload	Philosophy of protection of US aircrews against chemical warfare agents
N80-14754	N80-14734
PILOT SELECTION	Integration of protection against chemical warfare
Eustachian tube function in selection of airmen	agents with aircrew personal equipment
A80-20443	N80-14739
PILOT TRAINING	PROTECTIVE CLOTHING
Proficiency maintenance and assessment in an	Maintenance of air operations while under attack
instrument flight simulator A80-19023	with chemical agents protective clothing [AGARD-CP-264-SUPPL] N80-14728
When day is done and shadows fall, we miss the	[AGARD-CP-264-SUPPL] N80-14728 Concerning individual equipment for fighter pilots
airport most of all visual accommodation and	in the Air Porce
aircraft flight safety	N80-14735
A80-19024	US aircrew chemical defense assemblies
Rule learning and systematic instruction in pilot	N80-14736
training '	PRG aircrew chemical defence assemblies
[AD-A068906] N80-14709 PILOTS (PERSONNEL)	N80-14737
Preliminary investigation of pilot scanning	Integration of protection against chemical warfare agents with aircrew personal equipment
techniques of dial pointing instruments	N80-14738
[NASA-TM-80079] N80-14697	PROTEIR METABOLISM
Biochemical indices of stress: Biochemical	Mechanism of disorder of plastic processes in
aspects of the stress response	tissue during prolonged hypokinesia
PITUITARY GLAND	[NASA-TM-75955] N80-15799
Micromorphology of neurohypophysis of rats under	PROTEINS Information programs in the evaluation of such ale
experimental conditions	Information processes in the evolution of protein synthesis
[NASA-TM-75947] N80-14671	A80-20857
PITUITARY HORMONES	PROTORS
Hypergravity and estrogen effects on avian	Proton movements in response to a light-driven
anterior pituitary growth hormone and prolactin	electrogenic pump for sodium ions in
levels A80-20447	Halobacterium halobium membranes
POLARIZATION (CHARGE SEPARATION)	PSYCHOLOGICAL BPFECTS A80-17686
Charge separation in synthetic photo-reaction	The effect of aircraft noise on the functional
centers	state of human operators
[CONF-781048-1] N80-15784	A80-21039

A80-21039

PSYCHOLOGY		Frequency and power windowing in tissue	
A study in procedural manipulation of 1	ocus of	interactions with weak electromagnetic	
control	N80-14704	Early transient incapacitation: A review	180-21032
[AD-A068658] PSYCHONOTOR PERFORMANCE	NOU-14704	consideration of underlying mechanisms	#10H
Psychophysiological monitoring of opera	tor's	[AD-A071803]	N80-14693
emotional stress in aviation and astr	onautics A80-20449	RADIATION HAZARDS Electromagnetic radiation from selected	
Circadian rhythms of human performance		telecommunications systems	
resistance: Operational aspects		· · · · · · · · · · · · · · · · · · ·	A80-21018
_	N80-15808	State of the knowledge for electromagnetic absorbed dose in man and animals	c
PSYCHOPHYSICS A mind/brain/matter model consistent wi	th quantum		A80-21019
physics and UFO phenomena		Microwave biological effects - An overvie	
[AD-A068988]	N80-14711		A80-21021
PSYCHOPHYSIOLOGY An exploratory study of psychophysiolog	ical	Radiofrequency radiation spacecraft environmental limits	
measurements as indicators of air tra	ffic		N80-15794
control sector workload	**************************************	RADIATION MEASURING INSTRUMENTS Electromagnetic radiation from selected	
PUBLIC HEALTH	N80-14755	telecommunications systems	
Health effects of aerosols emitted from	an		A80-21018
activated sludge plant	700 40COC	RADIATION MEDICINE	e
[PB-299583/5] POPILLOMETRY	N80-14696	Study of effects of long-term low-level r exposure on rats - A plan	L
Pupillometric methods of workload evalu	ation:		A80-21028
Present status and future possibiliti	es	RADIATION SICKNESS	
pilot workload	N80-14752	Early transient incapacitation: A review consideration of underlying mechanisms	WICH
	100 14132		N80-14693
Ω		RADIO PREQUENCIES	
QUANTITATIVE ANALYSIS		Occupational exposure to radio-frequency electromagnetic fields	
Quantitative study of free amino acids	in human	•	A80-21017
eccrine sweat excreted from the forea	rms of	RF-field interactions with biological sys	
healthy trained and untrained men dur	A80-17727	Electrical properties and biophysical m	A80-21030
	200 11121	RADIO TRANSMISSION	
R		Electromagnetic radiation from selected telecommunications systems	
RADIANT PLUX DENSITY			A80-21018
Electromagnetic radiation from selected		RADIO WAVES	
telecommunications systems	100-21010	Study of effects of long-term low-level r exposure on rats - A plan	£
RADIATION DAMAGE	A80-21018		A80-21028
Microwave cataractogenesis		Radiofrequency radiation spacecraft	
DISTINUTE PAGE CH	A80-21022	environmental limits	N80-15794
RADIATION DOSAGE Occupational exposure to radio-frequence	:▼	RADIOBIOLOGY	100 13734
electromagnetic fields		Electromagnetic dosimetry for models of h	
Electromagnetic dosimetry for models of	A80-21017 humans and	animals - A review of theoretical and n techniques	umericar
animals - A review of theoretical and	numerical	<u> </u>	A80-21020
techniques		Soviet and Eastern European research on b	
	04000		iological
Microwage cataractogenesis	A80-21020	effects of microwave radiation	1010gical 180-21027
Microwave cataractogenesis	A80-21020 A80-21022	effects of microwave radiation	A80-21027
Microwave cataractogenesis Microwave irradiation and the blood-bra	A80-21022 in barrier	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m	A80-21027 tems - echanisms
Microwave irradiation and the blood-bra	A80-21022 in barrier A80-21023	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m	A80-21027 tems - echanisms A80-21030
•	A80-21022 in barrier A80-21023 crine	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion	A80-21027 tems - echanisms A80-21030 man
Microwave irradiation and the blood-bra Advances in microwave-induced neuroendo effects - The concept of stress	A80-21022 in barrier A80-21023 crine A80-21025	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion	A80-21027 tems - echanisms A80-21030
Microwave irradiation and the blood-bra Advances in microwave-induced neuroendo effects - The concept of stress Study of effects of long-term low-level	A80-21022 in barrier A80-21023 crine A80-21025	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion	A80-21027 tems - echanisms A80-21030 man
Microwave irradiation and the blood-bra Advances in microwave-induced neuroendo effects - The concept of stress Study of effects of long-term low-level exposure on rats - A plan	A80-21022 in barrier A80-21023 crine A80-21025 rf	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMAN SPECTRA Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion	A80-21027 tems - echanisms A80-21030 man A80-21031
Microwave irradiation and the blood-bra Advances in microwave-induced neuroendo effects - The concept of stress Study of effects of long-term low-level exposure on rats - A plan Electromagnetic fields in biological me	A80-21022 in barrier A80-21023 scrine A80-21025 rf A80-21028	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMAN SPECTRA Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion	A80-21027 tems - echanisms A80-21030 man
Microwave irradiation and the blood-bra Advances in microwave-induced neuroendo effects - The concept of stress Study of effects of long-term low-level exposure on rats - A plan Electromagnetic fields in biological me 2: The SCAT program, multilayered sp	A80-21022 in barrier A80-21023 scrine A80-21025 rf A80-21028	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMAN SPECTRA Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion	A80-21027 tems - echanisms A80-21030 man A80-21031 man
Microwave irradiation and the blood-bra Advances in microwave-induced neuroendo effects - The concept of stress Study of effects of long-term low-level exposure on rats - A plan Electromagnetic fields in biological me 2: The SCAT program, multilayered sp theory and applications [PB-300904/0]	A80-21022 in barrier A80-21023 scrine A80-21025 rf A80-21028	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMAN SPECTRA Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMGE (EXTREMES) Design criteria for characterizing indivi the extreme upper and lower body size r	A80-21027 tems - echanisms A80-21030 man A80-21031 man A80-21031 duals in anges
Microwave irradiation and the blood-bra Advances in microwave-induced neuroendo effects - The concept of stress Study of effects of long-term low-level exposure on rats - A plan Electromagnetic fields in biological me 2: The SCAT program, multilayered sp theory and applications [PB-300904/0] RADIATION EFFECTS	A80-21022 in barrier A80-21023 crine A80-21025 rf A80-21028 dia. Part there, N80-15904	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMAN SPECTRA Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMGE (EXTREMES) Design criteria for characterizing indivious the extreme upper and lower body size r [AD-A072353]	A80-21027 tems - echanisms A80-21030 man A80-21031 man A80-21031 duals in
Microwave irradiation and the blood-bra Advances in microwave-induced neuroendo effects - The concept of stress Study of effects of long-term low-level exposure on rats - A plan Electromagnetic fields in biological me 2: The SCAT program, multilayered sp theory and applications [PB-300904/0]	A80-21022 in barrier A80-21023 crine A80-21025 rf A80-21028 dia. Part there, N80-15904	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMAN SPECTRA Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RANGE (EXTREMES) Design criteria for characterizing indivi the extreme upper and lower body size r [AD-A072353] RANGES (FACILITIES) Aircrew performance research opportunitie	A80-21027 tems - echanisms A80-21030 man A80-21031 man A80-21031 duals in anges N80-14721 s using
Microwave irradiation and the blood-bra Advances in microwave-induced neuroendo effects - The concept of stress Study of effects of long-term low-level exposure on rats - A plan Electromagnetic fields in biological me 2: The SCAT program, multilayered sp theory and applications [PB-300904/0] RADIATION EFFECTS	A80-21022 in barrier A80-21023 crine A80-21025 rf A80-21028 dia. Part there, N80-15904	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMAN SPECTRA Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RANGE (EXTREMES) Design criteria for characterizing indivithe extreme upper and lower body size r [AD-A072353] RANGES (PACILITIES) Aircrew performance research opportunitie the Air Combat Maneuvering Range (ACRR)	A80-21027 tems - echanisms A80-21030 man A80-21031 man A80-21031 duals in anges N80-14721 s using
Microwave irradiation and the blood-bra Advances in microwave-induced neuroendo effects - The concept of stress Study of effects of long-term low-level exposure on rats - A plan Electromagnetic fields in biological me 2: The SCAT program, multilayered sp theory and applications [PB-300904/0] RADIATION EFFECTS Microwave biological effects - An overw	A80-21022 in barrier A80-21023 crine A80-21025 rf A80-21028 edia. Part there, N80-15804 riew A80-21021 A80-21024	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMAN SPECTRA Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RANGE (EXTREMES) Design criteria for characterizing indivithe extreme upper and lower body size r [AD-A072353] RANGES (PACILITIES) Aircrew performance research opportunitie the Air Combat Maneuvering Range (ACRR)	A80-21027 tems - echanisms A80-21030 man A80-21031 man A80-21031 duals in anges N80-14721 s using
Microwave irradiation and the blood-bra Advances in microwave-induced neuroendo effects - The concept of stress Study of effects of long-term low-level exposure on rats - A plan Electromagnetic fields in biological me 2: The SCAT program, multilayered sp theory and applications [PB-300904/0] RADIATION EFFECTS Microwave biological effects - An overv The microwave auditory phenomenon Epidemiologic studies of microwave effe	A80-21022 in barrier A80-21023 crine A80-21025 rf A80-21028 dia. Part chere, N80-15804 riew A80-21021 A80-21024 ects A80-21026	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMAN SPECTRA Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMGE (EXTREMES) Design criteria for characterizing indivi the extreme upper and lower body size r [AD-A072353] RANGES (PACILITIES) Aircrew performance research opportunitie the Air Combat Maneuvering Range (ACMR) RATINGS Rating errors of inconsistency as a funct	A80-21027 tems - echanisms A80-21030 man A80-21031 man A80-21031 duals in anges N80-14721 s using
Microwave irradiation and the blood-bra Advances in microwave-induced neuroendo effects - The concept of stress Study of effects of long-term low-level exposure on rats - A plan Electromagnetic fields in biological me 2: The SCAT program, multilayered sp theory and applications [PB-300904/0] RADIATION EFFECTS Microwave biological effects - An overw The microwave auditory phenomenon Epidemiologic studies of microwave effects Soviet and Eastern European research or	A80-21022 in barrier A80-21023 crine A80-21025 rf A80-21028 dia. Part chere, N80-15804 riew A80-21021 A80-21024 ects A80-21026	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMAN SPECTRA Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RANGE (EXTREMES) Design criteria for characterizing indivithe extreme upper and lower body size r [AD-A072353] RANGES (FACILITIES) Aircrew performance research opportunitie the Air Combat Maneuvering Range (ACMR) RATINGS Rating errors of inconsistency as a funct dimensionality of behavioral anchors	A80-21027 tems - echanisms A80-21030 man A80-21031 man A80-21031 duals in anges N80-14721 s using N80-14753 ion of
Microwave irradiation and the blood-bra Advances in microwave-induced neuroendo effects - The concept of stress Study of effects of long-term low-level exposure on rats - A plan Electromagnetic fields in biological me 2: The SCAT program, multilayered sp theory and applications [PB-300904/0] RADIATION EFFECTS Microwave biological effects - An overv The microwave auditory phenomenon Epidemiologic studies of microwave effe	A80-21022 in barrier A80-21023 crine A80-21025 rf A80-21028 dia. Part chere, N80-15804 riew A80-21021 A80-21024 ects A80-21026	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMAN SPECTRA Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RANGE (EITREMES) Design criteria for characterizing indivithe extreme upper and lower body size r [AD-A072353] RANGES (FACILITIES) Aircrew performance research opportunitie the Air Combat Maneuvering Range (ACMR) RATINGS Rating errors of inconsistency as a funct dimensionality of behavioral anchors	A80-21027 tems - echanisms A80-21030 man A80-21031 man A80-21031 duals in anges N80-14721 s using
Microwave irradiation and the blood-bra Advances in microwave-induced neuroendo effects - The concept of stress Study of effects of long-term low-level exposure on rats - A plan Electromagnetic fields in biological me 2: The SCAT program, multilayered sp theory and applications [PB-300904/0] RADIATION EFFECTS Microwave biological effects - An overv The microwave auditory phenomenon Epidemiologic studies of microwave effects Soviet and Eastern European research on effects of microwave radiation Study of effects of long-term low-level	A80-21022 in barrier A80-21023 crine A80-21025 rf A80-21028 dia. Part chere, N80-15804 riew A80-21021 A80-21024 ects A80-21026 a biological A80-21027	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMAN SPECTRA Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RANGE (EXTREMES) Design criteria for characterizing indivi the extreme upper and lower body size r [AD-A072353] RANGES (FACILITIES) Aircrew performance research opportunitie the Air Combat Maneuvering Range (ACMR) RATINGS Rating errors of inconsistency as a funct dimensionality of behavioral anchors [AD-A068922] REAL TIME OPERATION Real-time simulation of FLIR and LLLTV Sy	A80-21027 tems - echanisms A80-21030 man A80-21031 man A80-21031 duals in anges N80-14721 s using N80-14753 ion of
Microwave irradiation and the blood-bra Advances in microwave-induced neuroendo effects - The concept of stress Study of effects of long-term low-level exposure on rats - A plan Electromagnetic fields in biological me 2: The SCAT program, multilayered sp theory and applications [PB-300904/0] RADIATION EFFECTS Microwave biological effects - An overv The microwave auditory phenomenon Epidemiologic studies of microwave effects Soviet and Eastern European research or effects of microwave radiation	A80-21022 in barrier A80-21023 crine A80-21025 rf A80-21028 edia. Part there, N80-15804 riew A80-21021 A80-21024 ects A80-21024 ects A80-21026 a biological A80-21027	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMAN SPECTRA Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMGE (EITREMES) Design criteria for characterizing indivi the extreme upper and lower body size r [AD-A072353] RANGES (FACILITIES) Aircrew performance research opportunitie the Air Combat Maneuvering Range (ACMR) RATINGS Rating errors of inconsistency as a funct dimensionality of behavioral anchors [AD-A068922] REAL TIME OPERATION Real-time simulation of FLIR and LLLTV Sy aircrew training	A80-21027 tems - echanisms A80-21030 man A80-21031 man A80-21031 duals in anges N80-14721 s using N80-14753 ion of N80-14710 stems for
Microwave irradiation and the blood-bra Advances in microwave-induced neuroendo effects - The concept of stress Study of effects of long-term low-level exposure on rats - A plan Electromagnetic fields in biological me 2: The SCAT program, multilayered sp theory and applications [PB-300904/0] RADIATION EFFECTS Microwave biological effects - An overv The microwave auditory phenomenon Epidemiologic studies of microwave effects Soviet and Eastern European research or effects of microwave radiation Study of effects of long-term low-level exposure on rats - A plan	A80-21022 in barrier A80-21023 crine A80-21025 rf A80-21028 dia. Part chere, N80-15804 riew A80-21021 A80-21024 ects A80-21026 a biological A80-21027 rf A80-21028	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMAN SPECTRA Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMGE (EITREMES) Design criteria for characterizing indivi the extreme upper and lower body size r [AD-A072353] RANGES (FACILITIES) Aircrew performance research opportunitie the Air Combat Maneuvering Range (ACMR) RATINGS Rating errors of inconsistency as a funct dimensionality of behavioral anchors [AD-A068922] REAL TIME OPERATION Real-time simulation of FLIR and LLLTV Sy aircrew training	A80-21027 tems - echanisms A80-21030 man A80-21031 man A80-21031 duals in anges N80-14721 s using N80-14753 ion of N80-14710
Microwave irradiation and the blood-bra Advances in microwave-induced neuroendo effects - The concept of stress Study of effects of long-term low-level exposure on rats - A plan Electromagnetic fields in biological me 2: The SCAT program, multilayered sp theory and applications [PB-300904/0] RADIATION EFFECTS Microwave biological effects - An overv The microwave auditory phenomenon Epidemiologic studies of microwave effects Soviet and Eastern European research on effects of microwave radiation Study of effects of long-term low-level	A80-21022 in barrier A80-21023 crine A80-21025 rf A80-21028 dia. Part there, N80-15804 riew A80-21021 A80-21024 ects A80-21024 riex A80-21027 rf A80-21027 rf A80-21028 aetic fields rstems	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMAN SPECTRA Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMGE (EITREMES) Design criteria for characterizing indivi the extreme upper and lower body size r [AD-A072353] RANGES (PACILITIES) Aircrew performance research opportunitie the Air Combat Maneuvering Range (ACMR) RATINGS Rating errors of inconsistency as a funct dimensionality of behavioral anchors [AD-A068922] REAL TIME OPERATION Real-time simulation of FLIR and LLLTV Sy aircrew training REBREATHING Regenerative CO2 removal for PLSS applica	A80-21027 tems - echanisms A80-21030 man A80-21031 man A80-21031 duals in anges N80-14721 s using N80-14753 ion of N80-14710 estems for A80-20899 tion
Microwave irradiation and the blood-bra Advances in microwave-induced neuroendo effects - The concept of stress Study of effects of long-term low-level exposure on rats - A plan Electromagnetic fields in biological me 2: The SCAT program, multilayered sp theory and applications [PB-300904/0] RADIATION EFFECTS Microwave biological effects - An overv The microwave auditory phenomenon Epidemiologic studies of microwave effects of microwave radiation Study of effects of long-term low-level exposure on rats - A plan Biological effects of electric and magnassociated with ELF communications sy	A80-21022 in barrier A80-21023 crine A80-21025 rf A80-21028 dia. Part chere, N80-15804 riew A80-21021 A80-21024 ects A80-21026 a biological A80-21027 rf A80-21028 ectic fields rystems A80-21029	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMAN SPECTRA Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMGE (EITREMES) Design criteria for characterizing indivi the extreme upper and lower body size r [AD-A072353] RANGES (FACILITIES) Aircrew performance research opportunitie the Air Combat Maneuvering Range (ACMR) RATINGS Rating errors of inconsistency as a funct dimensionality of behavioral anchors [AD-A068922] REAL TIME OPERATION Real-time simulation of FLIR and LLLTV Sy aircrew training REBREATHING Regenerative CO2 removal for PLSS applica [NASA-CR-160419]	A80-21027 tems - echanisms A80-21030 man A80-21031 man A80-21031 duals in anges N80-14721 s using N80-14753 ion of N80-14710 estems for A80-20899
Microwave irradiation and the blood-bra Advances in microwave-induced neuroendo effects - The concept of stress Study of effects of long-term low-level exposure on rats - A plan Electromagnetic fields in biological me 2: The SCAT program, multilayered sp theory and applications [PB-300904/0] RADIATION EFFECTS Microwave biological effects - An overw The microwave auditory phenomenon Epidemiologic studies of microwave effect Soviet and Eastern European research or effects of microwave radiation Study of effects of long-term low-level exposure on rats - A plan Biological effects of electric and magn	A80-21022 in barrier A80-21023 crine A80-21025 rf A80-21028 edia. Part obere, N80-15804 view A80-21021 A80-21024 ects A80-21027 rf A80-21027 rf A80-21028 ettic fields rstems A80-21029 systems	effects of microwave radiation RF-field interactions with biological sys Electrical properties and biophysical m Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMAN SPECTRA Cellular effects: Millimeter waves and Ra spectra - Report of a panel discussion RAMGE (EITREMES) Design criteria for characterizing indivi the extreme upper and lower body size r [AD-A072353] RANGES (PACILITIES) Aircrew performance research opportunitie the Air Combat Maneuvering Range (ACMR) RATINGS Rating errors of inconsistency as a funct dimensionality of behavioral anchors [AD-A068922] REAL TIME OPERATION Real-time simulation of FLIR and LLLTV Sy aircrew training REBREATHING Regenerative CO2 removal for PLSS applica	A80-21027 tems - echanisms A80-21030 man A80-21031 man A80-21031 duals in anges N80-14721 s using N80-14753 ion of N80-14710 stems for A80-20899 tion N80-14718

REMOTE CONTROL		SITTING POSITION	
Man-machine communication in computer-a: manipulation	ided remote	Evaluation of human strain during interrexposure to vibration	upted
[AD-A074566] Teleoperators under the sea	N80-15823		A80-17726
[PB-299883/9] RESPIRATORY PHYSIOLOGY	พ80-15824	SKIN TEMPERATURE (BIOLOGY) Body temperature and heart rate relation	ships
Relationship among the 55 Hz bioelectric the olfactory bulb, the bulb S-rhythm	c rhythm of	during submaximal bicycle ergometer ex	ercises A80-17728
respiration	A80-20211	A study of metabolic balance in crewmemb Skylab IV	ers of
RETINA		•	A80-20021
A facilitation effect in orientation di: [AD-A072726] RETINAL ADAPTATION	N80-14713	SLEEP Sleep, Wakefulness and Circadian Rhythm	
Special session on vision [LBL-9160]	F80-15802	[AGARD-LS-105] Sleep stage organization: Neuro endocri	
RHEOLOGY The effect of antiorthostatic stimuli or	n human	Biological rhythms of man living in isol time cues	N80-15809 ation from
operators studied using rheography da	ta A80-20082	Hypnotics and the management of disturbe	N80-15813
RHYTHE (BIOLOGY)		approvies and the management of disturbe	d sleep N80-15818
Relationship among the 55 Hz bioelectric the olfactory bulb, the bulb S-rhythm, respiration	c rhythm of , and	SLEEP DEPRIVATION Temperature compensation of the metaboli:	sm of
-	A80-20211	serotonin in the brain of hibernating	A80-18082
Sleep and body rhythm disturbance in lor aviation. The problem and a search fo	ng-range or relief N80-14714	Sleep and body rhythm disturbance in lon- aviation. The problem and a search fo	g-range r relief
Biological rhythms of man living in isol	Lation from	Sleep disturbances in humans	N80-14714
	N80-15813	Sleep disturbance and performance	N80-15810
RIBONUCLEIC ACIDS The informational structure of DNA, RNA,	and amino	SODIUM	N80-15814
acid sequences		Proton movements in response to a light-	driven
Information processes in the evolution of synthesis	A80-20856 of protein	electrogenic pump for sodium ions in Halobacterium halobium membranes	
DNR gentent in notes and assessment	A80-20857	SOYUZ SPACECRAFT	180-17686
RNA content in motor and sensory neurons surrounding neuroglia of mouse spinal conditions of hypodynamia and followin	cord under	Results of medical studies during long-to flights on the orbital Salyut-6 and So [NASA-TB-76014]	erm manned yuz complex N80-15797
normalization [NASA-TM-75983]	N80-14672	SPACE FLIGHT STRESS Recent advances in Aeronautical and Space	Medicine
S		[AGARD-CP-265] Physiological factors in space operations Emphasis on space shuttle	N80+14678
SALYUT SPACE STATION			N80-14682
Scientific biomedical studies during the the first Bulgarian cosmonaut		Simulation of physiological systems in or evaluate and predict the human condition	der to
Results of medical studies during long-t	A80-19100 erm manned	space flight [NASA-TM-76016]	N80-14716
flights on the orbital Salyut-6 and So	yuz complex N80-15797	SPACE SHUTTLES	
SEDATIVES	19191	Physiological factors in space operations	ł_
		Emphasis on space shuttle	•
Hypnotics and the management of disturbe		Emphasis on space shuttle	N80-14682
SENSORY STIMULATION Effect of rhythmic photostimulation on m	N80-15818 onkevs	Regenerative CO2 removal for PLSS applica [NASA-CR-160419]	N80-14682
SENSORY STIMULATION Effect of rhythmic photostimulation on m with hyperkinesis of post-encephalitic [NASA-TH-75986]	N80-15818 onkevs	Regenerative CO2 removal for PLSS applica	N80-14682 tion N80-14718
SENSORY STIMULATION Effect of rhythmic photostimulation on m with hyperkinesis of post-encephalitic [NASA-TH-75986] SEROTOBIN	N80-15818 onkeys genesis N80-14674	Regenerative CO2 removal for PLSS applica [NASA-CR-160419] SPACEBORNE EXPERIMENTS Study of fungal phenotypes after exposure flight parameters	N80-14682 tion N80-14718
SENSORY STIBULATION Effect of rhythmic photostimulation on me with hyperkinesis of post-encephalitic [NASA-TH-75986] SEROTOBIN Temperature compensation of the metabolic serotonin in the brain of hibernating in the serotonin in the brain of hibernating in the serotonin in the	N80-15818 onkeys genesis N80-14674 sm of	Regenerative CO2 removal for PLSS applica [NASA-CR-160419] SPACEBORNE EXPERIMENTS Study of fungal phenotypes after exposure flight parameters SPACECRAFT CONTABINATION Contaminants physiological effects of	N80-14682 tion N80-14718 to space
SENSORY STINULATION Effect of rhythmic photostimulation on m with hyperkinesis of post-encephalitic [NASA-TH-75986] SEROTOHIN Temperature compensation of the metabolic serotonin in the brain of hibernating of SERUMS	N80-15818 onkeys genesis N80-14674 sm of mammals A80-18082	Regenerative CO2 removal for PLSS applica [NASA-CR-160419] SPACEBORNE EXPERIMENTS Study of fungal phenotypes after exposure flight parameters SPACECRAFT CONTAMINATION Contaminants physiological effects of spacecraft contaminants	N80-14682 tion N80-14718 to space
SENSORY STIBULATION Effect of rhythmic photostimulation on me with hyperkinesis of post-encephalitic [NASA-TH-75986] SEROTOBIN Temperature compensation of the metabolic serotonin in the brain of hibernating in the serotonin in the brain of hibernating in the serotonin in the	N80-15818 onkeys genesis N80-14674 sm of mammals A80-18082 Force	Regenerative CO2 removal for PLSS applica [NASA-CR-160419] SPACEBORNE EXPERIMENTS Study of fungal phenotypes after exposure flight parameters SPACECRAFT CONTABLINATION Contaminants physiological effects of spacecraft contaminants SPACECRAFT ENVIRONMENTS Biology and medicine in space: Research	N80-14682 tion N80-14718 to space A80-17986
SENSORY STIBULATION Effect of rhythmic photostimulation on m with hyperkinesis of post-encephalitic [NASA-TH-75986] SEROTOBIN Temperature compensation of the metabolic serotonin in the brain of hibernating of the serotonin the brain of the serotonin the brain of t	N80-15818 onkeys genesis N80-14674 sm of manmals A80-18082 Porce t Point A80-20442	Regenerative CO2 removal for PLSS applica [NASA-CR-160419] SPACEBORNE EXPERIMENTS Study of fungal phenotypes after exposure flight parameters SPACECRAFT CONTABLINATION Contaminants physiological effects of spacecraft contaminants SPACECRAFT ENVIRONMENTS Biology and medicine in space: Research opportunities offered by Spacelab. An invitation to European investigators [ESA-ER-01]	N80-14682 tion N80-14718 to space A80-17986 N80-15790
SENSORY STINULATION Effect of rhythmic photostimulation on m with hyperkinesis of post-encephalitic [NASA-TH-75986] SEROTOBLE Temperature compensation of the metabolic serotonin in the brain of hibernating of the serotomic serotonin in the brain of hibernating of the serotomic serotomic serotomic in the brain of hibernating of the serotomic serotomic in the brain of hibernating of the serotomic serot	N80-15818 onkeys genesis N80-14674 sm of mammals A80-18082 Porce t Point A80-20442	Regenerative CO2 removal for PLSS applica [NASA-CR-160419] SPACEBORNE EXPERIMENTS Study of fungal phenotypes after exposure flight parameters SPACECRAFT CONTABLINATION Contaminants physiological effects of spacecraft contaminants SPACECRAFT ENVIRONMENTS Biology and medicine in space: Research opportunities offered by Spacelab. An invitation to European investigators [ESA-ER-01] Biological systems for human life support of the research in the USSR	N80-14682 tion N80-14718 to space A80-17986 N80-15790
SENSORY STINULATION Effect of rhythmic photostimulation on me with hyperkinesis of post-encephalitic [NASA-TH-75986] SENOTONIN Temperature compensation of the metabolic serotonin in the brain of hibernating in the brain of hibernating in cadets compared with levels in the West study SEWAGE TRRATMENT Health effects of aerosols emitted from a activated sludge plant [PB-299583/5] Waste stabilization lagoon microorganism	N80-15818 onkeys genesis N80-14674 sm of mammals A80-18082 Force t Point A80-20442 an N80-14696 removal	Regenerative CO2 removal for PLSS applica [NASA-CR-160419] SPACEBORNE EXPERIMENTS Study of fungal phenotypes after exposure flight parameters SPACECRAFT CONTANINATION Contaminants physiological effects of spacecraft contaminants SPACECRAFT ENVIRONMENTS Biology and medicine in space: Research opportunities offered by Spacelab. An invitation to European investigators [ESA-ER-01] Biological systems for human life support of the research in the USSR [NASA-TR-76018] The physiological basis for spacecraft	N80-14682 tion N80-14718 to space A80-17986 N80-15790
SENSORY STIBULATION Effect of rhythmic photostimulation on m with hyperkinesis of post-encephalitic [NASA-TH-75986] SEROTOBIN Temperature compensation of the metabolic serotonin in the brain of hibernating in SERUMS Serum cholesterol levels in selected Air cadets compared with levels in the West study SEWAGE TREATMENT Health effects of aerosols emitted from a activated sludge plant [PB-299583/5] Waste stabilization lagoon microorganism efficiency and effluent disinfection with present the stabilization of the stabilization of the stabilization with the stabilization of the stabilization of the stabilization with the stabilization w	N80-15818 onkeys genesis N80-14674 sm of mammals A80-18082 Force t Point A80-20442 an N80-14696 removal th chlorine N80-15786	Regenerative CO2 removal for PLSS applica [NASA-CR-160419] SPACEBORNE EXPERIMENTS Study of fungal phenotypes after exposure flight parameters SPACECRAFT CONTABLINATION Contaminants physiological effects of spacecraft contaminants SPACECRAFT ENVIRONMENTS Biology and medicine in space: Research opportunities offered by Spacelab. An invitation to European investigators [ESA-ER-01] Biological systems for human life support of the research in the USSR [NASA-TR-76018] The physiological basis for spacecraft environmental limits [NASA-RP-1045] Atmosphere physiological basis for sp	N80-14682 tion N80-14718 to space A80-17986 N80-15790 N80-14677 : Review N80-14717
SENSORY STIBULATION Effect of rhythmic photostimulation on m with hyperkinesis of post-encephalitic [NASA-TH-75986] SEROTOBIN Temperature compensation of the metabolic serotonin in the brain of hibernating in SERUMS Serum cholesterol levels in selected Air cadets compared with levels in the West study SEWAGE TREATMENT Health effects of aerosols emitted from a activated sludge plant [PB-299583/5] Waste stabilization lagoon microorganism efficiency and effluent disinfection with [PB-300631/9] SIGNAL DETECTION A nonparametric model of detection of signobserved by a human operator on a CRT	N80-15818 onkeys genesis N80-14674 sm of mammals A80-18082 Force t Point A80-20442 an N80-14696 removal ith chlorine N80-15786 gnals,	Regenerative CO2 removal for PLSS applica [NASA-CR-160419] SPACEBORNE EXPERIENTS Study of fungal phenotypes after exposure flight parameters SPACECRAFT CONTABINATION Contaminants physiological effects of spacecraft contaminants SPACECRAFT ENVIRONBEBTS Biology and medicine in space: Research opportunities offered by Spacelab. An invitation to European investigators [ESA-BR-01] Biological systems for human life support of the research in the USSR [NASA-TH-76018] The physiological basis for spacecraft environmental limits [NASA-RP-1045] Atmosphere physiological basis for spa	N80-14682 tion N80-14718 to space A80-17986 N80-15790 N80-14677 : Review N80-14717 N80-15788 acecraft
SENSORY STIBULATION Effect of rhythmic photostimulation on m with hyperkinesis of post-encephalitic [NASA-TH-75986] SEROTONIN Temperature compensation of the metabolic serotonin in the brain of hibernating in the serotonin	N80-15818 onkeys genesis N80-14674 sm of mammals A80-18082 Force t Point A80-20442 an N80-14696 removal ith chlorine N80-15786 gnals,	Regenerative CO2 removal for PLSS applica [NASA-CR-160419] SPACEBORNE EXPERIENTS Study of fungal phenotypes after exposure flight parameters SPACECRAFT CONTABINATION Contaminants physiological effects of spacecraft contaminants SPACECRAFT ENVIRONBEBTS Biology and medicine in space: Research opportunities offered by Spacelab. An invitation to European investigators [ESA-BR-01] Biological systems for human life support of the research in the USSR [NASA-TH-76018] The physiological basis for spacecraft environmental limits [NASA-RP-1045] Atmosphere physiological basis for sp pressure tolerance limits Contaminants physiological effects of spacecraft contaminants	N80-14682 tion N80-14718 to space A80-17986 N80-15790 N80-14677 : Review N80-14717 N80-15788 acccraft
SENSORY STIBULATION Effect of rhythmic photostimulation on m with hyperkinesis of post-encephalitic [NASA-TH-75986] SEROTOBIN Temperature compensation of the metabolic serotonin in the brain of hibernating in SERUMS Serum cholesterol levels in selected Air cadets compared with levels in the West study SEWAGE TREATMENT Health effects of aerosols emitted from a activated sludge plant [PB-299583/5] Waste stabilization lagoon microorganism efficiency and effluent disinfection with [PB-300631/9] SIGNAL DETECTION A nonparametric model of detection of signobserved by a human operator on a CRT	N80-15818 onkeys genesis N80-14674 sm of mammals A80-18082 Force t Point A80-20442 an N80-14696 removal th chlorine N80-15786 gnals, screen in A80-19452	Regenerative CO2 removal for PLSS applica [NASA-CR-160419] SPACEBORNE EXPERIENTS Study of fungal phenotypes after exposure flight parameters SPACECRAFT CONTABINATION Contaminants physiological effects of spacecraft contaminants SPACECRAFT ENVIRONMENTS Biology and medicine in space: Research opportunities offered by Spacelab. An invitation to European investigators [ESA-ER-01] Biological systems for human life support of the research in the USSR [NASA-TM-76018] The physiological basis for spacecraft environmental limits [NASA-RP-1045] Atmosphere physiological basis for spressure tolerance limits Contaminants physiological effects of spacecraft contaminants Thermal environment physiological basis temperature tolerance limits	N80-14682 tion N80-14718 to space A80-17986 N80-15790 N80-14677 : Review N80-14717 N80-15788 acccraft N80-15789

Radiofrequency radiation spacecraft environmental limits N80-15794	Concepts of workload study of work capacity and pilot performance in terms of physiological and psychological stress
Weightlessness physiological effects	N80-14740
N80-15795 SPACECREWS	Concepts of fatigue survey of studies on pilot performance and flight fatigue discussed in
Space motion sickness	terms of physiological and psychological stress N80-14741
Amino aciduria in weightlessness	Concepts of stress
N80-20022 Fluid volumes changes induced by spaceflight	N80-14742 Influence of hypokinesis on physiological
A80-20023	functions in fowl
The European approach to the selection and training of SL payload specialists	[NASA-TM-75999] N80-15778 Rat reaction to hypokinesia after prior adaptation
N30-14681	to hypoxia [NASA-TM-75964] N80-15782
SPACELAB Biology and medicine in space: Research	STRESS (PSYCHOLOGY)
opportunities offered by Spacelab. An invitation to Buropean investigators	Psychophysiological monitoring of operator's emotional stress in aviation and astronautics
[ESA-BR-01] N80-14677	A80-20449 The effect of certain extremal factors on the
SPACELAB PAYLOADS The European approach to the selection and	human auditory function
training of SL payload specialists N80-14681	A80-21038 Concepts of workload study of work capacity
SPATIAL PILTERING	and pilot performance in terms of physiological
Spatial filtering and mechanisms of perception in human vision	and psychological stress N80-14740
A80-20858	Concepts of fatigue survey of studies on pilot performance and flight fatigue discussed in
SPEECH Speech patterns and aircrew workload	terms of physiological and psychological stress
NEO-14754 SPINAL CORD	N80-14741 Concepts of stress
Topographic characteristics of post-synaptic actions of primary vestibular fibers on the	N80-14742 Handling qualities, workload and heart rate
vestibulospinal neurons of Deiters nucleus A80-20681	N80-14750 Pupillometric methods of workload evaluation:
RNA content in motor and sensory neurons and	Present status and future possibilities
surrounding neuroglia of mouse spinal cord under conditions of hypodynamia and following	pilot workload #80-14752
normalization	Speech patterns and aircrew workload N80-14754
[NASA-TM-75983] N80-14672 STANDARDS	An exploratory study of psychophysiological
Derivation of presbycusis and Noise Induced Permanent Threshold Shift (NIPTS) to be used for	measurements as indicators of air traffic control sector workload
the basis of a standard on the effects of noise	N80-14755 Individual and system performance indices for the
on hearing [AD-A071310] N80-14690	air traffic control system
STATISTICAL DECISION THEORY Validation and error in multiplicative utility	N80-14756 Workload and stress in air traffic controllers
functions	N80-14757 Assessment correlates of workload and performance
[AD-A073362] N80-14598 A criterion validation of multiattribute utility	ห80- 14758
analysis and of a group communication strategy [AD-A073364] N80-14699	SUPERSONIC FLIGHT Supersonic aerial transport: Medical and
Importance weight assessment for additive,	physiological aspects Concorde aircraft N80-14683
riskless preference functions: A review [AD-A073365] N80-14700	SUPINE POSITION
Are important weights sensitive to the range of alternatives in multiattribute utility measurement	Joint Soviet-American experiment on hypokinesia: Experimental results
[AD-A073366] N80-14701	[NASA-TM-76013] N80-15796 SURGERY
STIMULANT Psychosti mulants	Motion sickness. I - A theory. II - A clinical
STRESS (PHYSIOLOGY) N80-15817	study based on surgery of cerebral hemisphere lesions. III - A clinical study based on surgery
Evaluation of human strain during interrupted	of posterior fossa tumors A80-20452
exposure to vibration A80-17726	Intra-ocular pressure normalization technique and
Hormonal regulation of calcium and phosphorus homeostasis during physical activity	equipment [NASA-CASE-LEW-12955-1] N80-14684
A80-20684	
Advances in microwave-induced neuroendocrine effects - The concept of stress	varying amounts of radar information
A80-21025 Micromorphology of neurohypophysis of rats under	[AD-A074866] N80-14722 SWEAT
experimental conditions	Quantitative study of free amino acids in human eccrine sweat excreted from the forearms of
[NASA-TM-75947] N80-14671 Supersonic aerial transport: Medical and	healthy trained and untrained men during exercise
physiological aspects Concorde aircraft N80-14683	A80-17727 SYMMETRY
Three instruments for assessment of WBGT and a	A mathematical model of the disruption of mirror symmetry in prebiological evolution
comparison with WGT (BOTSBALL) [AD-A074979] N80-14691	*00.70(00
Extended analysis of small group performance and the effects of contingency management in a	т
programmed environment	TARGET ACQUISITION
[AD-A068665] N80-14705	Process model of how the human operator tracks
	discontinuous inputs [AD-A069001] N80-14712

SUBJECT INDEX VISUAL ACCOMMODATION

ECHNOLOGY ASSESSMENT		TREMORS	
US aircrew chemical defense assemblies	0-14726	Study on the neuronal circuits implicated	l in
CECHNOLOGY UTILIZATION	0-14736	postural tremor and hypokinesia [NASA-TM-76004]	N80-15783
Perspectives of the utilization of hyperbar.	ic	TUNORS	
oxygenation in aviation medicine A8	0-20500	Notion sickness. I - A theory. II - A cli study based on surgery of cerebral hemi	
PELECOMMUNICATION		lesions. III - A clinical study based of	om surgery
Electromagnetic radiation from selected telecommunications systems		of posterior fossa tumors	A80-20452
A8	0-21018	• •	
ELEOPERATORS Teleoperators under the sea		U	
[PB-299883/9] N8	0-15824	U.S.S.R.	
PELEVISION SYSTEMS Real-time simulation of PLIR and LLLTV Syst	ems for	Soviet and Eastern European research on E effects of microwave radiation	oiological
aircrew training	ems for	creeces or microwave radiation	A80-21027
PEMPERATURE COMPENSATION	0-20899	U.S.S.R. SPACE PROGRAM Scientific biomedical studies during the	flict of
Temperature compensation of the metabolism	of	the first Bulgarian cosmonaut	riight or
serotonin in the brain of hibernating mam	mals 0-18082	RUNDOUMEN DESTERDATES	A 80-19100
PEMPERATURE CONTROL	0-18082	UNDERWATER ENGINEERING Model task for the dynamics of an underwa	ıt er
A controlled rate freeze/thaw system for		two-legged walker	
cryopreservation of biological materials [NASA-CR-162531] N8	0-14675	[NASA-TM-75697] UNDERWATER VEHICLES	N80-15822
TEMPERATURE EFFECTS		Teleoperators under the sea	
Heat stress exposure of aerial spray pilots	0-20451	[PB-299883/9] URBAS	N80-15824
THERMAL STRESSES		Dialysis system using ion exchange re	esin
Heat stress exposure of aerial spray pilots	0-20451	membranes permeable to urea molecules [NASA-CASE-NPO-14101-1]	N80-14687
THRESHOLDS (PERCEPTION)	0-20451	UROLOGY	NOU- 14667
Derivation of presbycusis and Noise Induced	3 6	Toxic polypeptides and uremia	V00 45003
Permanent Threshold Shift (NIPTS) to be un the basis of a standard on the effects of		[PB-301063/4]	N80-15803
on hearing		V	
[AD-A071310] N8	0-14690	VALUE	
Mathematical concepts for modeling human be	havior	Subjective versus statistical importance	weights.
in complex man-machine systems	0-19025	A criterion validation [AD-A073367]	N80-14702
TISSUES (BIOLOGY)	0 17025	VECTORCARDIOGRAPHY	14702
RF-field interactions with biological system		Confidence regions of planar cardiac vect	
Electrical properties and biophysical mec A8	0-21030	VESTIBULAR TESTS	A80-19850
Frequency and power windowing in tissue	-13-	A sudden-stop vestibulovisual test for ra	
interactions with weak electromagnetic fi	e1as 0-21032	assessment of motion sickness manifesta	tions A80-20444
Effect of prolonged hypokinesia on tissue b		VESTIBULES	
[NASA-TM-76005] N8 Mechanism of disorder of plastic processes:	0-14688 in	Topographic characteristics of post-synap actions of primary vestibular fibers on	
tissue during prolonged hypokinesia		vestibulospinal neurons of Deiters nucl	eus
[NASA-TM-75955] N8	0-15799	VIBRATION	A80-20681
Therapy on nerve agent poisoning		Modeling biodynamic effects of vibration,	fifth year
N8 POXIC HAZARDS	0-14732	[AD-A073819] Physical forces generating acceleration,	N80-14719
Maintenance of air operations while under a	ttack	vibration, and impact physiological	effects
<pre>with chemical agents protective cloth: [AGARD-CP-264-SUPPL] N8</pre>	ing 0-14728	VIBRATION EFFECTS	N80-15792
Approaches to CW agent area detection system		Evaluation of human strain during interru	pted
air fields	0-14733	exposure to vibration	A80-17726
Philosophy of protection of US aircrews aga:		The effect of character size on the legib	
chemical warfare agents		numeric displays during vertical whole-	
NO NOXICITY	0-14734	vibration	A80-18839
The effects of acute and chronic low dose ex	xposure	Combined effects of broadband noise and c	
to anticholinesterases	0-14729	waveform vibration on cognitive perform	ance A80-20441
COXICOLOGY		VIEWING	
Toxic polypeptides and uremia [PB-301063/4] N8	0-15803	Preliminary investigation of pilot scanni techniques of dial pointing instruments	ng
Biological screening of complex samples from		[NASA-TM-80079]	N80-14697
industrial/energy processes	0-15805	VISION	
[PB-300459/5] TRACKING (POSITION)	0-13603	Visual performance: A method to assess we in the flight environment	orkroad
Process model of how the human operator trace	cks	•	N 80-14749
discontinuous inputs [AD-A069001] N8	0-14712	Special session on vision [LBL-9160]	N80-15802
TRAINING EVALUATION		VISUAL ACCOMMODATION	
Proficiency maintenance and assessment in a instrument flight simulator	n	When day is done and shadows fall, we mis airport most of all visual accommod	
A8	0-19023	aircraft flight safety	
TRANSPER OF TRAINING Proficiency maintenance and assessment in a	n		A80-19024
instrument flight simulator			
A90	0-19023		

	-		
VISUAL ACUITY The effect of character size on the legib		WEIGHTLESSNESS A study of metabolic balance in crewmember	ers of
numeric displays during vertical whole- vibration	-	Skylab IV	A80-20021
Daytime visual acuity of observers throug	A80-18839 h a	Amino aciduria in weightlessness	A80-20022
VISUAL AIDS	N80-15800	Recent advances in Aeronautical and Space [AGARD-CP-265] Physiological factors in space operations	N80-14678
Motor Vehicle Manufacturers Association (Two-Dimensional Crash Victim Simulation		Emphasis on space shuttle	N80-14682
	N80-14724	Weightlessness physiological effects	N80-15795
VISUAL DISCRIMINATION Theoretical problems in modeling color gradetection in human vision	ating	WEIGHTLESSHESS SIMULATION Exercise response to simulated weightles:	
A facilitation effect in orientation disc [AD-A072726]	A80-20861 rimination N80-14713	A mathematical and experimental simulation hematological response to weightlessness	
WISUAL PLIGHT When day is done and shadows fall, we mis:	s the	Effect of hypogravity on human lymphocyte	
airport most of all visual accommoda aircraft flight safety		WIENER PILTERING Interpreting nonlinear systems - The thir	
	A80-19024	kernel of the eye movement control syst	tem
Spatial filtering and mechanisms of percer in human vision	ption	WORK	180-20860
	A80-20858	Work performance as a function of the int of ability, work values, and the percei	
	N80-15802	environment [AD-A068893]	N80-14707
VISUAL PIGHENTS Energy uptake in the first step of visual	excitation A80-20387	Concepts of workload study of work ca and pilot performance in terms of physical	ipacity iological
VISUAL STINULI		and psychological stress	N80-14740
	A80-17711	WORK CAPACITY Concepts of workload study of work ca and pilot performance in terms of physi	ipacity
A sudden-stop vestibulovisual test for ra assessment of motion sickness manifesta	tions	and psychological stress	N80-14740
A facilitation effect in orientation discr [AD-A072726]	A80-20444 rimination N80-14713	WORK-REST CYCLE Tolerance to shift work: A chronologic a	pproach N80-15815
WISUAL TASKS Hypnotics and the management of disturbed	sleep N80-15818	WORKLOADS (PSICHOPHYSIOLOGY) The effect of aircraft noise on the funct state of human operators	ional
VITAMINS The effect of age and vitamin provision of		-	A80-21039
on their night vision characteristics	A80-21040	Survey of methods to assess workload [AGARD-AG-246] Concepts of workload study of work ca and pilot performance in terms of physi	N80-14739
W		and psychological stress	•
WAKEPULNESS Sleep, Wakefulness and Circadian Rhythm		Some considerations concerning methods to and assess workload in aircraft pilots	N80-14740 evaluate
Vigilance and attention	N80-15806	Physiologic aspects of workload/fatigue/s	N80-14743 tress
Biological rhythms of man living in isolat	N80-15811 tion from		N80-14744
time cues	N80-15813	factors engineering study of performance flight crews workloads	
WALKING MACHINES Model task for the dynamics of an underwat	ter		N80-14746
two-legged walker [NASA-TM-75697]	√80-15822		N80-14747
WARNING SYSTEMS Approaches to CW agent area detection syst		·	
	N80-14733		
Some human factors issues in the developme evaluation of cockpit alerting and warni	ent and ing systems		
[NASA-RP-1055] WEIGHTING FUNCTIONS Validation and error in multiplicative uti	180-15821		
functions			
A criterion validation of multiattribute u analysis and of a group communication st	N80-14698 utility trategy		
[AD-A073364] Importance weight assessment for additive.	180-14699		
riskless preference functions: A review [AD-A073365]	180-14700		
Are important weights sensitive to the ran alternatives in multiattribute utility m	nge of measurement		
	180-14701		
* · 0 7 0 0 0 7 7 7	180-14702		

PERSONAL AUTHOR INDEX

AEROSPACE MEDICINE AND BIOLOGY / A Continuing Bibliography (Suppl. 205)

APRIL 1980

N80-14724

Typical Personal Author Index Listing

PERSONA	AL AUTHOR	
BLOOMPIELD, J.	B	
Reluct-mount	ed displays: An exp	erimental
	ion of display lumin	
[AD-A07205	9]	N80-11783
	<u> </u>	
	REPORT	ACCESSION
TITLE	NUMBER	NUMBER
L		

The title of the document is used to provide the user with a brief description of the subject matter. The NASA or AIAA accession number is included in each entry to assist the user in locating the abstract in the abstract section of this supplement. If applicable, a report number is also included as an aid in identifying the document.

٨	
A	
ADEY, W. R.	
Frequency and power windowing in tissue	
interactions with weak electromagnetic	
	A80-21032
ALBANESE, R. A.	
Quantitative military workload analysis	
	N80-14748
ALBRECHT, D. G.	
Visual cortical neurons - Are bars or gra	atings the
optimal stimuli	
	A80-17711
ALEXANDER, H.	
Anthropometric sizing, fit-testing and ev	valuation
of the MBU-12/P oral-nasal oxygen mask	
[AD-A074723]	M80-14692
ALPEROVITCH, Y.	
Man-machine communication in computer-aid	led remote
manipulation	*****
[AD-A074566]	N80-15823
AMODEO, P. A., JR.	

Comparison of diurnal fluctuations of dissolved inorganic carbon and algal productivity estimates in an oligotrophic and mesotrophic

freshwater environment [PB-301201/0] NRO-15785

ANSELNO, V. J.
A controlled rate freeze/thaw system for cryopreservation of biological materials [NASA-CR-162531]

ABTONOVA, G. A.
Activity of cholinesterases of blood and heart in rats of different sex and age during muscular

loads and hypokinesia [NASA-TM-75951]

Serum cholesterol levels in selected Air Force cadets compared with levels in the West Point

study A80-20442 ASTLE, L.

Synthesis and biological screening by novel hybrid fluorocarbon hydrocarbon compounds for use as artificial blood substitutes [NASA-CR-162537]

ATLAN, H.
Review of cell aging in Drosophila and mouse
A80 A80-17741

AVETIKIAH, SH. T.

The effect of antiorthostatic stimuli on human operators studied using rheography data 180-20082 AZHEVSKII, P. IA.
Perspectives of the utilization of hyperbaric oxygenation in aviation medicine

	A80-20500
R	
BARHR, B. P. Intra-ocular pressure normalization technology	nique and
equipment [NASA-CASE-LEW-12955-1] BANTZER, P.	N80-14684
Quantitative study of free amino acids in	human
eccrine sweat excreted from the forearm	s of
healthy trained and untrained men during	ng exercise 180-17727
Rat reaction to hypokinesia after prior a	daptation
to hypoxia [NASA-TM-75964]	N80-15782
BARRON, F. H. Validation and error in multiplicative ut	ility
functions [AD-A073362]	N80-14698
BARTLETT, C. J. Rating errors of inconsistency as a funct	ion of
dimensionality of behavioral anchors [AD-A068922]	N80-14710
BATTOCLETTI, J. H. Steady magnetic fields in noninvasive	
electromagnetic flowmetry	
•	A80-21033
BEARDEN, T. E. A mind/brain/matter model consistent with	quantum
physics and UPO phenomena [AD-A068988]	N80-14711
BRATTY, J. Pupillometric methods of workload evaluat	ion:
Present status and future possibilities	
DRAWER 1 H	N80-14752
BECKER, J. H. MVMA Two-Dimensional Crash Victim Simulat	ion,
version 4, volume 3 [PB-299307/9]	N80-14727
BEDARD, P. Study on the neuronal circuits implicated	! in
postural tremor and hypokinesia	•
[NASA-TM-76004] BEEBE, T.	N80-15783
Individual and system performance indices air traffic control system	for the
BELAKOVSKII, N. S.	N80-14756
Effect of 1 alpha-hydroxy-cholecalciferol varying phosphorous content in the diet	
calcium phosphorous metabolism in hypok	
BELETSKIY, V. V.	A80-20445
Model task for the dynamics of an underwa	ter
two-legged walker [NASA-TM-75697]	N80-15822
Technologies for the handicapped and the	a ged
[NASA-TM-80842] BENNETT, R. O.	N80-14715
Motor Vehicle Manufacturers Association ((HVHA)
Two-Dimensional Crash Victim Simulation	
system: Self-study guide	N80-14723
[PB-299256/8] Motor Vehicle Manufacturers Association (
Two-Dimensional Crash Victim Simulation	

[PB-299257/6]

NVMA Two-Dimensional Crash Victim Simulation, version 4, volume 1 [PB-299305/3] N80-14725	BROWN, J. L. A facilitation effect in orientation discrimination [AD-A072726] N80-14713
MYMA Two-Pimensional Crash Victim Simulation, version 4, volume 2	BRUMBERG, V. A. RNA content in motor and sensory neurons and
[PB-299306/1] N80-14726 MVMA Two-Dimensional Crash Victim Simulation,	surrounding neuroglia of mouse spinal cord under conditions of hypodynamia and following normalization
version 4, volume 3 [PB-299307/9] N80-14727 BENSCH, K. G.	[NASA-TM-75983] N80-14672
Review of cell aging in Drosophila and mouse A80-17741	An exploratory study of psychophysiological measurements as indicators of air traffic
BERNUDEZ, J. M. Effect of peripherally presented visual signals on pilot performance during flight simulation	control sector workload N80-14755 Individual and system performance indices for the
[AD-A073604] N80-14703 BISHOP, K.	air traffic control system N80-14756
Process model of how the human operator tracks discontinuous inputs [AD-A069001] N80-14712	EXERCISE response to simulated weightlessness
[AD-A069001] N80-14712 BJURSTEDT, H.	BUDKO, V. N.
Biology and medicine in space: Research opportunities offered by Spacelab. An	A nonparametric model of detection of signals, observed by a human operator on a CRT screen in
invitation to European investigators [ESA-BR-01] N80-14677	the presence of noise A80-19452
BLAZHREVICH, N. V. Effect of 1 alpha-hydroxy-cholecalciferol and	BUROVSKIY, N. N. Joint Soviet-American experiment on hypokinesia:
varying phosphorous content in the diet on calcium phosphorous metabolism in hypokinetic rats A80-20445	Experimental results [NASA-TM-76013] N80-15796
BLEIFELD, W.	С
Left ventricular relaxation and filling pattern in different forms of left ventricular hypertrophy - An echocardiographic study	CADIGAN, P. C. The effects of acute and chronic low dose exposure
A80-18975 BORLAND, R. G.	to anticholinesterases N80-14729
Hypnotics and the management of disturbed sleep N80-15818 BORMAN, E. A.	CANNINGS, B. Speech patterns and aircrew workload N80-14754
The course of experimental staphylococcus infection in albino mice during action of	CARNOW, B. Health effects of aerosols emitted from an
certain factors of space flight [NASA-TM-75973] N80-15779 BOUCEER, R.	activated sludge plant [PB-299583/5] N80-14696 CARPENTER, D. O.
Study on the neuronal circuits implicated in postural tremor and hypokinesia	Farly transient incapacitation: A review with consideration of underlying mechanisms
[NASA-TM-76004] N80-15783 BOUVIER, G.	[AD-A071803] N80-14693 CHERNIAKOV, I. N.
Study on the neuronal circuits implicated in postural tremor and hypokinesia	Perspectives of the utilization of hyperbaric oxygenation in aviation medicine
[NASA-TM-76004] N80-15783 BOWLES, D. S.	CHIPMAN, N.
Waste stabilization lagcon microorganism removal efficiency and effluent disinfection with chlorine	The effects of acute and chronic low dose exposure to anticholinesterases
[PB-300631/9] N80-15786 BOWMAN, B. M.	N80-14729 CHOU, CK.
Motor Vehicle Manufacturers Association (MVMA) Two-Dimensional Crash Victim Simulation tutorial	Study of effects of long-term low-level rf exposure on rats - A plan
system: Self-study guide [PB-299256/8] N80-14723	A80-21028
Motor Vebicle Manufacturers Association (MVMA) Two-Dimensional Crash Victim Simulation tutorial	Man-machine communication in computer-aided remote manipulation
system: Audio-visual program [PB-299257/6] N80-14724	[AD-A074566] N80-15823
MVMA Two-Dimensional Crash Victim Simulation, version 4, volume 1 [PB-299305/3] N80-14725	Design criteria for characterizing individuals in the extreme upper and lower body size ranges
MVMA Two-Dimensional Crash Victim Simulation, version 4, volume 2	CIAVARELLI, A. P. Aircrew performance research opportunities using
[PB-299306/1] N80-14726 NVMA Two-Dimensional Crash Victim Simulation,	the Air Combat Maneuvering Range (ACMR) N80-14753
version 4, volume 3 [PB-299307/9] N80-14727 BRADY, J. V.	CIERNA, V. Influence of hypokinesis on physiological functions in fowl
Extended analysis of small group performance and the effects of contingency management in a programmed environment	[NASA-TM-75999] N80-15778 CLARK, D. A. Serum cholesterol levels in selected Air Force
[AD-A068665] N80-14705 BRICTSON, C. A.	cadets compared with levels in the West Point study
Aircrew performance research opportunities using the Air Combat Maneuvering Range (ACMR) N80-14753	A80-20442 CLEARY, S. P. Microwave cataractogenesis
BRIEGLES, Wa Effect of hypogravity on human lymphocyte activation	CLESCERI, N. L.
A80-20446 BRISSON, G. R. Body temperature and heart rate relationships	Comparison of diurnal fluctuations of dissolved inorganic carbon and algal productivity estimates in an oligotrophic and mesotrophic
during submaximal bicycle ergometer exercises A80-17728	freshwater environment [PB-301201/0] N80-15785

COGOLI, A.		ELLIS, J. P.	
Effect of hypogravity on human lympho	cyte activation A80-20446	Biochemical indices of stress: Biochem	ical
COMPTON, G. L.		aspects of the stress response	N80-15812
Proficiency maintenance and assessmen	t in an	BEURIAN, H. H.	
instrument flight simulator	A80-19023	Extended analysis of small group perfor the effects of contingency management	mance and
COOPER, A.		programmed environment	ın a
Energy uptake in the first step of vi	sual excitation A80-20387	[AD-A068665]	N80-14705
CRAWFORD, B. M.		<pre>BNGIN, A. E. Measurement of resistive torques in maj</pre>	or human
Workload assessment methodology devel	opment N80-14747	Joints	
CRIMMINS, P. T.		[AD-A071170] ERNSTING, J.	N80-14695
Approaches to CW agent area detection airfields	systems for	An advanced oxygen system for future co	mbat aircraft
	N80-14733	Maintenance of air operations while und	N80-14680
CROOKS, W4 E. Man-machine communication in computer	a:dad ====+	with chemical agents	
manipulation	-alded Lemote	[AG ARD-CP-264-SUPPL] EVRARD, B.	N80-14728
[AD-A074566] CROSBY, B. C.	N80-15823	Problems related to medical criteria for	r the
Motion sickness. I - A theory. II - A	clinical	selection of military navigation pers	onnel
study based on surgery of cerebral	hemisphere	_	N80-14679
lesions. III - A clinical study bas of posterior fossa tumors	ed on surgery	F	
	A80-20452	PALLON, P. P.	
CZEISLER, C. A. Biological rhythms of man living in i	solation from	US aircrew chemical defense assemblies	
time cues		PANARDZHIAN, V. V.	N80-14736
	N80-15813	Topographic characteristics of post-syna	aptic
D		actions of primary vestibular fibers of vestibulospinal neurons of Deiters nuc	on the
DANILOV, I. V.			A80-20681
Effect of rhythmic photostimulation or	n monkeys	<pre>PEDOROY, B. M. Changes of some blood indices and myocar</pre>	-dial
with hyperkinesis of post-encephalit	tic genesis N80-14674	electrolyte content during hypokinesia	t
DE VALOIS, R. L.		[NASA-TH-75954] FEDOTOVA, V. P.	N80-15798
Visual cortical neurons - Are bars or optimal stimuli	gratings the	Effect of prolonged hypokinesia on tissu	e blood flow
•	A80-17711	[NASA-TM-76005] PINEBERG, M. L.	N80-14688
DEPAYOLLE, M. Vigilance and attention		Proficiency maintenance and assessment i	in an
rigitance and accention	N80-15811	instrument flight simulator	A80-19023
Psychostimulants	NOO 45047	PIORINDO, R. P.	
DI FERRANTE, N.	N80-15817	Hypergravity and estrogen effects on avianterior pituitary growth hormone and	.an
Amino aciduria in weightlessness		levels	profactin
DION, M.	A80-20022	FLEISHHAN, B. A.	A80-20447
Body temperature and heart rate relati during submaximal bicycle ergometer	onships	Methods for evaluating the physical and	effort
daring Sabmaximat DicActe eldometel	exercises	requirements of Navy tasks: Metabolic	•_
	A80-17728		-1-4
DISKALENKO, V. V.	A80-17728	performance, and physical ability corr perceived effort	elates of
DISKALENKO, V. V. The effect of certain extremal factors	A80-17728	perceived effort [AD-A072497]	N80-14720
DISKALBERG, V. V. The effect of certain extremal factors human auditory function	A80-17728	perceived effort [AD-A072497] FOLEY, W. L.	N80-14720
DISKALENKO, V. V. The effect of certain extremal factors human auditory function DOELLING, N.	A80-17728 on the	perceived effort [AD-A072497]	elates of N80-14720 ystems for
DISKALENKO, V. V. The effect of certain extremal factors human auditory function DOELLING, N. Teleoperators under the sea [PB-299883/9]	A80-17728 on the	perceived effort [AD-A072497] FOLEY, W. L. Real-time simulation of FLIR and LLLTV S aircrew training FORNUM, P.	elates of N80-14720 ystems for A80-20899
DISKALENKO, V. V. The effect of certain extremal factors human auditory function DOELLING, N. Teleoperators under the sea [PB-299883/9] DUBIN, S.	A80-17728 s on the A80-21038 N80-15824	perceived effort [AD-A072497] FOLBY, W. L. Real-time simulation of PLIR and LLLTV S aircrew training FONNUM, F. The effect of locally applied organophos	elates of N80-14720 ystems for A80-20899 phates on
DISKALENKO, V. V. The effect of certain extremal factors human auditory function DOELLING, N. Teleoperators under the sea [PB-299883/9] DUBIN, S. Confidence regions of planar cardiac v	A80-17728 s on the A80-21038 N80-15824	perceived effort [AD-A072497] FOLEY, W. L. Real-time simulation of FLIR and LLLTV S aircrew training FONNUM, P. The effect of locally applied organophos miosis and acetylcholinesterase adapta	elates of N80-14720 ystems for A80-20899 phates on
DISKALENKO, V. V. The effect of certain extremal factors human auditory function DOELLING, N. Teleoperators under the sea [PB-299883/9] DUBIN, S. Confidence regions of planar cardiac v. DURNEY, C. H.	A80-17728 s on the A80-21038 N80-15824 ectors A80-19850	perceived effort [AD-A072497] FOLEY, W. L. Real-time simulation of FLIR and LLLTV S aircrew training FORNUM, P. The effect of locally applied organophos miosis and acetylcholinesterase adapta chronic treatment	elates of N80-14720 ystems for A80-20899 phates on
DISKALENKO, V. V. The effect of certain extremal factors human auditory function DOELLING, N. Teleoperators under the sea [PB-299883/9] DUBIN, S. Confidence regions of planar cardiac v DURNEY, C. H. Electromagnetic dosimetry for models of animals - A review of theoretical and the control of the con	A80-17728 on the A80-21038 N80-15824 ectors A80-19850 f humans and	perceived effort [AD-A072497] FOLEY, W. L. Real-time simulation of FLIR and LLLTV s aircrew training FONNUM, F. The effect of locally applied organophos miosis and acetylcholinesterase adapta chronic treatment FOSTER, K. R.	elates of N80-14720 ystems for A80-20899 phates on tion to N80-14731
DISKALENKO, V. V. The effect of certain extremal factors human auditory function DOELLING, N. Teleoperators under the sea [PB-299883/9] DUBIN, S. Confidence regions of planar cardiac v DURNEY, C. H. Electromagnetic dosimetry for models o	A80-17728 s on the A80-21038 N80-15824 ectors A80-19850 f humans and d numerical	perceived effort [AD-A072497] FOLEY, W. L. Real-time simulation of FLIR and LLLTV S aircrew training FORNUM, P. The effect of locally applied organophos miosis and acetylcholinesterase adapta chronic treatment	elates of N80-14720 ystems for A80-20899 phates on tion to N80-14731
DISKALENKO, V. V. The effect of certain extremal factors human auditory function DOELLING, N. Teleoperators under the sea [PB-299883/9] DUBIN, S. Confidence regions of planar cardiac v DURNEY, C. H. Electromagnetic dosimetry for models of animals - A review of theoretical and the control of the con	A80-17728 on the A80-21038 N80-15824 ectors A80-19850 f humans and	perceived effort [AD-A072497] FOLEY, W. L. Real-time simulation of FLIR and LLLTV S aircrew training FONNUM, F. The effect of locally applied organophos miosis and acetylcholinesterase adapta chronic treatment FOSTER, K. R. RF-field interactions with biological sy Electrical properties and biophysical	elates of N80-14720 ystems for A80-20899 phates on tion to N80-14731
DISKALENKO, V. V. The effect of certain extremal factors human auditory function DOELLING, N. Teleoperators under the sea [PB-299883/9] DUBIN, S. Confidence regions of planar cardiac v DURNEY, C. H. Electromagnetic dosimetry for models of animals - A review of theoretical and the control of the con	A80-17728 s on the A80-21038 N80-15824 ectors A80-19850 f humans and d numerical	perceived effort [AD-A072497] FOLEY, W. L. Real-time simulation of FLIR and LLLTV S aircrew training FONNUM, P. The effect of locally applied organophos miosis and acetylcholinesterase adapta chronic treatment FOSTER, K. R. RF-field interactions with biological sy Electrical properties and biophysical FOULDS, E. L. Serum cholesterol levels in selected hir	elates of N80-14720 ystems for A80-20899 phates on tion to N80-14731 stems - mechanisms A80-21030
DISKALENKO, V. V. The effect of certain extremal factors human auditory function DOELLING, N. Teleoperators under the sea [PB-299883/9] DUBIN, S. Confidence regions of planar cardiac v. DURNEY, C. H. Electromagnetic dosimetry for models of animals - A review of theoretical and techniques E ECONOMOS, A. C.	A80-17728 s on the A80-21038 N80-15824 ectors A80-19850 f humans and d numerical A80-21020	perceived effort [AD-A072497] FOLEY, W. L. Real-time simulation of FLIR and LLLTV S aircrew training FONNUM, F. The effect of locally applied organophos miosis and acetylcholinesterase adapta chronic treatment FOSTER, K. R. RF-field interactions with biological sy Electrical properties and biophysical FOULDS, E. L. Serum cholesterol levels in selected Air cadets compared with levels in the Wes	elates of N80-14720 ystems for A80-20899 phates on tion to N80-14731 stems - mechanisms A80-21030
DISKALENKO, V. V. The effect of certain extremal factors human auditory function DOELLING, N. Teleoperators under the sea [PB-299883/9] DUBIN, S. Confidence regions of planar cardiac v DURNEY, C. H. Electromagnetic dosimetry for models of animals - A review of theoretical and techniques	A80-17728 s on the A80-21038 N80-15824 ectors A80-19850 f humans and d numerical A80-21020	perceived effort [AD-A072497] FOLEY, W. L. Real-time simulation of FLIR and LLLTV s aircrew training FONNUM, P. The effect of locally applied organophos miosis and acetylcholinesterase adapta chronic treatment FOSTER, K. R. RF-field interactions with biological sy Electrical properties and biophysical FOULDS, E. L. Serum cholesterol levels in selected Air cadets compared with levels in the Wes- study	elates of N80-14720 ystems for A80-20899 phates on tion to N80-14731 stems - mechanisms A80-21030
DISKALENKO, V. V. The effect of certain extremal factors human auditory function DOELLING, N. Teleoperators under the sea [PB-299883/9] DUBIN, S. Confidence regions of planar cardiac v DURNEY, C. H. Electromagnetic dosimetry for models of animals - A review of theoretical and techniques E ECONOMOS, A. C. Review of cell aging in Drosophila and EDWARDS, W.	A80-17728 s on the A80-21038 N80-15824 ectors A80-19850 f humans and d numerical A80-21020 mouse A80-17741	perceived effort [AD-A072497] FOLEY, W. L. Real-time simulation of FLIR and LLLTV S aircrew training FONNUM, F. The effect of locally applied organophos miosis and acetylcholinesterase adapta chronic treatment FOSTER, K. R. RF-field interactions with biological sy Electrical properties and biophysical FOULDS, E. L. Serum cholesterol levels in selected Air cadets compared with levels in the Wes- study FROLOV, H. V.	elates of N80-14720 ystems for A80-20899 phates on tion to N80-14731 stems - mechanisms A80-21030 Force t Point A80-20442
DISKALENKO, V. V. The effect of certain extremal factors human auditory function DOELLING, N. Teleoperators under the sea [PB-299883/9] DUBIN, S. Confidence regions of planar cardiac v DURNEY, C. H. Electromagnetic dosimetry for models of animals - A review of theoretical and techniques E ECONOMOS, A. C. Review of cell aging in Drosophila and EDWARDS, W. Importance weight assessment for addit	A80-17728 s on the A80-21038 N80-15824 ectors A80-19850 f humans and numerical A80-21020 mouse A80-17741 ive,	perceived effort [AD-A072497] FOLEY, W. L. Real-time simulation of FLIR and LLLTV s aircrew training FONNUM, P. The effect of locally applied organophos miosis and acetylcholinesterase adapta chronic treatment FOSTER, K. R. RF-field interactions with biological sy Electrical properties and biophysical FOULDS, E. L. Serum cholesterol levels in selected Air cadets compared with levels in the Wes- study	elates of N80-14720 ystems for A80-20899 phates on tion to N80-14731 stems - mechanisms A80-21030 Force t Point A80-20442
DISKALENKO, V. V. The effect of certain extremal factors human auditory function DOELLING, N. Teleoperators under the sea [PB-299883/9] DUBIN, S. Confidence regions of planar cardiac v DURNEY, C. H. Electromagnetic dosimetry for models of animals - A review of theoretical and techniques E ECONOMOS, A. C. Review of cell aging in Drosophila and EDWARDS, W.	A80-17728 s on the	perceived effort [AD-A072497] FOLEY, W. L. Real-time simulation of FLIR and LLLTV S aircrew training FONNUM, F. The effect of locally applied organophos miosis and acetylcholinesterase adapta chronic treatment FOSTER, K. R. RF-field interactions with biological sy Electrical properties and biophysical FOULDS, E. L. Serum cholesterol levels in selected Air cadets compared with levels in the Wes- study FROLOV, H. V. Psychophysiological monitoring of operat.	elates of N80-14720 ystems for A80-20899 phates on tion to N80-14731 stems - mechanisms A80-21030 Force t Point A80-20442
DISKALENKO, V. V. The effect of certain extremal factors human auditory function DOELLING, N. Teleoperators under the sea [PB-299883/9] DUBIN, S. Confidence regions of planar cardiac v DURNEY, C. H. Electromagnetic dosimetry for models of animals - A review of theoretical and techniques E ECONOMOS, A. C. Review of cell aging in Drosophila and EDWARDS, W. Importance weight assessment for addit riskless preference functions: A re [AD-A073365] Subjective versus statistical importants	A80-17728 s on the A80-21038 N80-15824 ectors A80-19850 f humans and d numerical A80-21020 mouse A80-17741 ive, view N80-14700	perceived effort [AD-A072497] FOLEY, W. L. Real-time simulation of FLIR and LLLTV S aircrew training FONNUM, F. The effect of locally applied organophos miosis and acetylcholinesterase adapta chronic treatment FOSTER, K. R. RF-field interactions with biological sy Electrical properties and biophysical FOULDS, E. L. Serum cholesterol levels in selected Mir cadets compared with levels in the Wes- study FROLOV, H. V. Psychophysiological monitoring of operate emotional stress in aviation and astron	elates of N80-14720 ystems for A80-20899 phates on tion to N80-14731 stems - mechanisms A80-21030 Force t Point A80-20442 or's hautics
DISKALENKO, V. V. The effect of certain extremal factors human auditory function DOELLING, N. Teleoperators under the sea [PB-299883/9] DUBIN, S. Confidence regions of planar cardiac v DURNEY, C. H. Electromagnetic dosimetry for models of animals - A review of theoretical and techniques E ECONOMOS, A. C. Review of cell aging in Drosophila and EDWARDS, W. Importance weight assessment for addit riskless preference functions: A re [AD-A073365]	A80-17728 s on the A80-21038 N80-15824 ectors A80-19850 f humans and d numerical A80-21020 mouse A80-17741 ive, view N80-14700 ce weights.	perceived effort [AD-A072497] FOLEY, W. L. Real-time simulation of FLIR and LLLTV S aircrew training FONNUM, P. The effect of locally applied organophos miosis and acetylcholinesterase adapta chronic treatment FOSTER, K. R. RF-field interactions with biological sy Electrical properties and biophysical FOULDS, R. L. Serum cholesterol levels in selected Air cadets compared with levels in the Wes- study FROLOV, H. V. Psychophysiological monitoring of operat- emotional stress in aviation and astron	elates of N80-14720 ystems for A80-20899 phates on tion to N80-14731 stems - mechanisms A80-21030 Force t Point A80-20442 or's hautics
DISKALENKO, V. V. The effect of certain extremal factors human auditory function DOELLING, N. Teleoperators under the sea [PB-299883/9] DUBIN, S. Confidence regions of planar cardiac v DURNEY, C. H. Electromagnetic dosimetry for models of animals - A review of theoretical and techniques E ECONOMOS, A. C. Review of cell aging in Drosophila and EDWARDS, W. Importance weight assessment for addit riskless preference functions: A re [AD-A073365] Subjective versus statistical important A criterion validation [AD-A073367] EHRLICH, K.	A80-17728 s on the A80-21038 N80-15824 ectors A80-19850 f humans and d numerical A80-21020 mouse A80-17741 ive, view N80-14700	perceived effort [AD-A072497] FOLEY, W. L. Real-time simulation of FLIR and LLLTV s aircrew training FONNUM, P. The effect of locally applied organophos miosis and acetylcholinesterase adapta chronic treatment FOSTER, K. R. RF-field interactions with biological sy Electrical properties and biophysical FOULDS, E. L. Serum cholesterol levels in selected Air cadets compared with levels in the Wes- study FROLOV, H. V. Psychophysiological monitoring of operate emotional stress in aviation and astron G GABRIELLI, W. P., JR. Are important weights sensitive to the re-	elates of N80-14720 ystems for A80-20899 phates on tion to N80-14731 stems - mechanisms A80-21030 Force t Point A80-20442 or s nautics A80-20449
DISKALENKO, V. V. The effect of certain extremal factors human auditory function DOELLING, N. Teleoperators under the sea [PB-299883/9] DUBIN, S. Confidence regions of planar cardiac v DURNEY, C. H. Electromagnetic dosimetry for models of animals - A review of theoretical and techniques E ECONOMOS, A. C. Review of cell aging in Drosophila and EDWARDS, W. Importance weight assessment for addit riskless preference functions: A re [AD-A073365] Subjective versus statistical important A criterion validation [AD-A073367] EHRLICH, K. Toxic polypeptides and uremia	A80-17728 s on the A80-21038 N80-15824 ectors A80-19850 f humans and d numerical A80-21020 mouse A80-17741 ive, view N80-14700 ce weights. N80-14702	perceived effort [AD-A072497] FOLEY, W. L. Real-time simulation of FLIR and LLLTV S aircrew training FONNUM, F. The effect of locally applied organophos miosis and acetylcholinesterase adapta chronic treatment FOSTER, K. R. RF-field interactions with biological sy Electrical properties and biophysical FOULDS, E. L. Serum cholesterol levels in selected Air cadets compared with levels in the West study FROLOV, H. V. Psychophysiological monitoring of operate emotional stress in aviation and astron G GABRIELLI, W. F., JR. Are important weights sensitive to the re alternatives in multiattribute utility	elates of N80-14720 ystems for A80-20899 phates on tion to N80-14731 stems - mechanisms A80-21030 Force t Point A80-20442 or's nautics A80-20449
DISKALENKO, V. V. The effect of certain extremal factors human auditory function DOELLING, N. Teleoperators under the sea [PB-299883/9] DUBIN, S. Confidence regions of planar cardiac v DURNEY, C. H. Electromagnetic dosimetry for models of animals - A review of theoretical and techniques E ECONOMOS, A. C. Review of cell aging in Drosophila and EDWARDS, W. Importance weight assessment for addit riskless preference functions: A re [AD-A073365] Subjective versus statistical important A criterion validation [AD-A073367] EHRLICH, K. Toxic polypeptides and uremia [PB-301063/4] ELLS, L. C., III	A80-17728 s on the A80-21038 N80-15824 ectors A80-19850 f humans and d numerical A80-21020 mouse A80-17741 ive, view N80-14700 ce weights. N80-14702	perceived effort [AD-A072497] FOLEY, W. L. Real-time simulation of FLIR and LLLTV s aircrew training FONNUM, P. The effect of locally applied organophos miosis and acetylcholinesterase adapta chronic treatment FOSTER, K. R. RF-field interactions with biological sy Electrical properties and biophysical FOULDS, E. L. Serum cholesterol levels in selected Air cadets compared with levels in the Wes- study FROLOV, H. V. Psychophysiological monitoring of operate emotional stress in aviation and astron G GABRIELLI, W. P., JR. Are important weights sensitive to the re-	elates of N80-14720 ystems for A80-20899 phates on tion to N80-14731 stems - mechanisms A80-21030 Force t Point A80-20442 or s nautics A80-20449
DISKALENKO, V. V. The effect of certain extremal factors human auditory function DOELLING, N. Teleoperators under the sea [PB-299883/9] DUBIN, S. Confidence regions of planar cardiac v DURNEY, C. H. Electromagnetic dosimetry for models of animals - A review of theoretical and techniques E ECONOMOS, A. C. Review of cell aging in Drosophila and Drawards preference functions: A re [AD-A073365] Subjective versus statistical important A criterion validation [AD-A073367] EHRLICH, K. Toxic polypeptides and uremia [PB-301063/4] EILS, L. C., III A criterion validation of multiattribution	A80-17728 s on the A80-21038 N80-15824 ectors A80-19850 f humans and d numerical A80-21020 mouse A80-17741 ive, view N80-14700 ce weights. N80-14702 N80-15803 te utility	perceived effort [AD-A072497] FOLEY, W. L. Real-time simulation of FLIR and LLLTV S aircrew training FONNUM, F. The effect of locally applied organophos miosis and acetylcholinesterase adapta chronic treatment FOSTER, K. R. RF-field interactions with biological sy Electrical properties and biophysical FOULDS, E. L. Serum cholesterol levels in selected Air cadets compared with levels in the West study FROLOV, H. V. Psychophysiological monitoring of operate emotional stress in aviation and astron G GABRIELLI, W. F., JR. Are important weights sensitive to the ra alternatives in multiattribute utility [AD-A073366] GADE, P. A. Proficiency maintenance and assessment in	elates of N80-14720 ystems for A80-20899 phates on tion to N80-14731 stems - mechanisms A80-21030 Force t Point A80-20442 or s nautics A80-20449 ange of measurement N80-14701
DISKALENKO, V. V. The effect of certain extremal factors human auditory function DOELLING, N. Teleoperators under the sea [PB-299883/9] DUBIN, S. Confidence regions of planar cardiac v DURNEY, C. H. Electromagnetic dosimetry for models of animals - A review of theoretical and techniques E ECONOMOS, A. C. Review of cell aging in Drosophila and EDWARDS, W. Importance weight assessment for addit riskless preference functions: A re [AD-A073365] Subjective versus statistical important A criterion validation [AD-A073367] EHRLICH, K. Toxic polypeptides and uremia [PB-301063/4] ELLS, L. C., III	A80-17728 s on the A80-21038 N80-15824 ectors A80-19850 f humans and d numerical A80-21020 mouse A80-17741 ive, view N80-14700 ce weights. N80-14702 N80-15803 te utility	perceived effort [AD-A072497] FOLEY, W. L. Real-time simulation of FLIR and LLLTV s aircrew training FONNUM, P. The effect of locally applied organophos miosis and acetylcholinesterase adapta chronic treatment FOSTER, K. R. RF-field interactions with biological sy Electrical properties and biophysical FOULDS, E. L. Serum cholesterol levels in selected Air cadets compared with levels in the Wes study FROLOV, H. V. Psychophysiological monitoring of operate emotional stress in aviation and astron G GABRIELLI, W. P., JR. Are important weights sensitive to the re alternatives in multiattribute utility [AD-A073366] GADE, P. A.	elates of N80-14720 ystems for A80-20899 phates on tion to N80-14731 stems - mechanisms A80-21030 Force t Point A80-20442 or s nautics A80-20449 ange of measurement N80-14701

GANDHI, G. P. State of the knowledge for electromagnet: absorbed dose in man and animals		Н	
GARTHER, W. B.	A80-21019	HANNON, R. L. Work performance as a function of the interac of ability, work values, and the perceived	tion work
Concepts of workload Concepts of fatigue	R80-14740	environment	14707
CICDA D W	N80-14741	HAMPATH, P. Left ventricular relaxation and filling patte	rn in
Concerning individual equipment for fight in the Air Porce		different forms of left ventricular hypertr - An echocardiographic study A80-	18975
GREHARDT, D. L.	N80-14735	HARLOW, P. H.	
Methods for evaluating the physical and constraints of Mayy tasks: Metabolic		Hental dynamics [LA-7946-HS] N80- BARRIS, C. S.	15820
performance, and physical ability corr perceived effort [AD-A072497]	N80-14720	Combined effects of broadband noise and compl waveform vibration on cognitive performance	!
GEDEVANISHVILI, D. M. Relationship among the 55 Hz bioelectric	rhythm of	HARRIS, R. L., SR.	20441
the olfactory bulb, the bulb S-rhythm, respiration	and A80-20211	Preliminary investigation of pilot scanning techniques of dial pointing instruments [NASA-TH-80079] N80-	14697
GERLACH, V. S.		HARRISON, R. G.	
Rule learning and systematic instruction training	n in pilot N80-14709	A controlled rate freeze/thaw system for cryopreservation of biological materials [NASA-CR-162531]	14675
[AD-A068906] GILIHSKIY, H. A.		HARTMAN. B. O.	
Evoked potentials in immobilized cats to combination of clicks with painful	a	Survey of methods to assess workload ['AGARD-AG-246] Some insights relative to the man-machine sys	·14739 stem:
electrocutaneous stimuli [NASA-TM-75941] GINSBURG, A. P.	N80-15780	An overview of ten years of research N80-	-14745
Spatial filtering and mechanisms of perc	eption 180-20858	Biochemical indices of stress: Biochemical aspects of the stress response N80-	- 15812
GLADYSHEVA, W. A. Effect of hypoxia on the contractile act smooth muscle cells in the thoracic du	ict		-15819
COLDMAN, R. P.	A80-20683	HARTZELL, B. J. Process model of how the human operator track discontinuous inputs	ks
Three instruments for assessment of WBG1 comparison with WGT (BOTSBALL)	N80-14691	[AD-A069001] N80-	-14712
[AD-A074979] SOLUBKOV, V. V. Model task for the dynamics of an undervitwo-legged walker	water	Synthesis and biological screening by novel ! fluorocarbon hydrocarbon compounds for use artificial blood substitutes	as -14689
[NASA-TH-75697]	N80-15822	HATLEY, V. W.	
Heat stress exposure of aerial spray pil	lots A80-20451	A study in procedural manipulation of locus of control [BD-A068658] N80-	of -14704
GRANA, D. C. Investigation of effects of temperature and electrode design on the performance	, salinity, ce of an	BANKINS, F. B. Sleep and body rhythm disturbance in long-ran aviation. The problem and a search for re-	nge lief
electrochemical coliform detector [NASA-TM-80130]	N80-14676	, N80-	-14714
GRAYBIEL, A. A sudden-stop vestibulovisual test for	rapid	BECKART, S. A. Daytime visual acuity of observers through a	
assessment of motion sickness manifes	tations A80-20444	[40 2014122]	-15800
GREENE, R. V. Proton movements in response to a light- electrogenic pump for sodium ions in	-driven	HEPPNER, D. B. Regenerative CO2 removal for PLSS application [NSA-CR-160419] N80	n - 14718
Halobacterium halobium membranes	A80-17686	HERR, A. Confidence regions of planar cardiac vectors	- 19850
GRIBETZ, B. Heat stress exposure of aerial spray pi	lots 180-20451	HOFFMAN, R. G. Ability, involvement and climate as multiple	
GRIPPIN, H. J. The effect of character size on the leg	ibility of	interactive predictors of performance [AD-A068891] N80	-14706
numeric displays during vertical whole vibration	e-body	HOGAN, J. C. Methods for evaluating the physical and efforeguirements of Navy tasks: Metabolic,	rt
GRISSETT, J. D.	A80-18839	performance, and physical ability correlat	es of
Biological effects of electric and magn associated with ELF communications sy	etic fields stems 180-21029	perceived effort [AD-A072497] N80 BOLDEN, J.	- 14720
GROTH, P. Eustachian tube function in selection o	f airmen	Health effects of aerosols emitted from an activated sludge plant	- 1/16QE
GROUNDS, D. J.	A80-20443	PB-299583/5] BOLLABD, P. P., JR. Toxic polypeptides and uremia) 1 4696
Weightlessness	n80-15795	[PB-301063/4] N80	- 15803
GUY, A. W. Study of effects of long-term low-level exposure on rats - A plan		Space motion sickness	-20018
•	A80-21028	Physiological factors in space operations. Emphasis on space shuttle	14607

Sound and noise BORDINSKY, J. R.	N80-15793	JOHNSON, R. B. Study of effects of long-term low-level	l rf
The European approach to the selection	and	exposure on rats - A plan	A80-21028
training of SL payload specialists	N80-14681	JOHNSON, W. W.	
HORRIGAN, D. J. Atmosphere	1.00 14001	Process model of how the human operator discontinuous inputs	
•	พ80-15789	[AD-A069001] JUSTESEN, D. R.	N80-14712
HUNT, P. Confidence regions of planar cardiac ve		Microwave irradiation and the blood-bra	ain barrier A80-21023
	A80-19850	14	
1		K	
ISOARD, P.		KAARLBLE, D. H. Synthesis and biological screening by r	novel hubrid
Development of 'sports anemia' in phys: men after daily sustained submaximal	ically fit exercise A80-20448	fluorocarbon hydrocarbon compounds for artificial blood substitutes [NASA-CR-162537]	or use as
IVANOV, E. A.		RAPLAN, H. L.	N80-14689
Psychophysiological monitoring of opera emotional stress in aviation and astr	tor's conautics	Contaminants	N80-15790
IVANOV, R. P.	A80-20449	KATCHER, B. L.	
Physiological regulation of oxygen tran	isport to	Rating errors of inconsistency as a fun dimensionality of behavioral anchors	ction of
muscles /from results of mathematical of experimental data/	l analysis	[AD-A068922] KATZ, J. J.	N80-14710
IVARSSON, A.	A80-18081	Charge separation in synthetic photo-re	action
Eustachian tube function in selection of		centers [CONF-781048-1]	N80-15784
	A80-20443	RELDERBACHER, SD. Quantitative study of free amino acids	in human
J		eccrine sweat excreted from the forea healthy trained and untrained men dur	rms of
JAGACINSKI, R. J.			A80-17727
Process model of how the human operator discontinuous inputs	tracks	RESSELER, K. Quantitative study of free amino acids	in human
[AD-A069001] JAGGARD, D. L.	N80-14712	eccrine sweat excreted from the forea	rms of
Cellular effects: Millimeter waves and	Raman	healthy trained and untrained men dur	1ng exercise A80-17727
spectra - Report of a panel discussio	n A80-21031	KIMBALL, K. Visual performance: A method to assess	workload
JASLOW, H. A new engineering approach to motion cu	eing	in the flight environment	
technology	•	KINZEY, S. L.	N80-14749
[AIAA PAPER 80-0047] JEX, H. R.	A80-18250	A mathematical and experimental simulat hematological response to weightlessn	ion of the ess
Modeling biodynamic effects of vibratio [AD-A073819]	n, fifth year N80-14719	KLEIN, E.	A80-20020
JOHANNSEH, G. Mathematical concepts for modeling huma	n hehavior	Toxic polypeptides and uremia	
in complex man-machine systems		[PB-301063/4] KLEIN, K. E.	N80-15803
JOHN, R. S.	A80-19025	The European approach to the selection a training of SL payload specialists	and
A criterion validation of multiattribut analysis and of a group communication		Circadian rhythms of human performance	N80-14681
[AD-A073364] Importance weight assessment for additi	N80-14699	resistance: Operational aspects	
riskless preference functions: A rev	iew	Circadian rhythms in air operations	N80-15808
[AD-A073365] Subjective versus statistical importanc	N80-14700 € weights.	KLEIN, S.	N80-15816
A criterion validation [AD-A073367]	N80-14702	Interpreting nonlinear systems - The thi	
JOHNSON, B. A.		kernel of the eye movement control sys	stem A80-20860
Waste stabilization lagoon microorganis efficiency and effluent disinfection	m removal with chlorine	KLEMENTEW, P. H. A nonparametric model of detection of si	ignale
[PB-300631/9] JOHNSON, D. L.	N80-15786	observed by a human operator on a CRT the presence of noise	screen in
Derivation of presbycusis and Noise Ind Permanent Threshold Shift (NIPTS) to	uced		A80-19452
the basis of a standard on the effect	s of noise	ROBLIANSKII, V. V. The effect of age and vitamin provision	of pilots
on hearing [AD-A071310]	N80-14690	on their night vision characteristics	A80-21040
JOHNSON, J. B., JR. Review of cell aging in Drosophila and	mouse	ROONTZ, A. B. The interaction of ozone with the human	ervthrocyte
JOHNSON, L. C.	A80-17741	KOPP, D. W.	N80-14686
Sleep disturbances in humans	700 15010	The informational structure of DNA, RNA,	and amino
Sleep disturbance and performance	N90-15810	acid sequences	A80-20856
JOHNSON, P. C.	N80-15814	Information processes in the evolution of synthesis	of protein
A mathematical and experimental simulat: hematological response to weightlessno	ion of the		180-20857
-	A80-20020	KORSAKOV, I. A. Evoked potentials in immobilized cats to	a a
Fluid volumes changes induced by spacef	light A80-20023	combination of clicks with painful electrocutaneous stimuli	
		[NASA-TM-75941]	N80-15780

KORTELA, I. M. A facilitation effect in orientation disc [AD-A072726]	crimination N80-14713	LEWIS, C. H. The effect of character size on the legi numeric displays during vertical whole vibration	
KOYTON, V. P. Practical criteria for analyzing the hear hemodynamics of young athletes	rt	LIABAKE, E. G.	A80-18839
KRASNA, M.	A80-20212	Physiological regulation of oxygen trans muscles /from results of mathematical of experimental data/	
Heat stress exposure of aerial spray pilo	A80-20451	-	A80-18081
KROTOV, V. P. Changes of some blood indices and myocard electrolyte content during hypokinesia [NASA-TM-75954] KUDRAYATSEVA, N. N.	dia1 N80-15798	Quantitative study of free amino acids i eccrine sweat excreted from the forear healthy trained and untrained men duri	ms of
Effect of rhythmic photostimulation on mo with hyperkinesis of post-encephalitic [NASA-TM-75986]	onkeys genesis N80-14674	LIN, J. C. The microwave auditory phenomenon	A80-21024
KULESH, V. E. A mathematical model of the disruption of symmetry in prebiological evolution	f mirror	LONGRIDGE, T. H. Effect of peripherally presented visual pilot performance during flight simula	
-	A80-20680	[AD-A073604] LORDS, J. L.	N80-14703
Study of effects of long-term low-level : exposure on rats - A plan		Cellular effects: Millimeter waves and R spectra - Report of a panel discussion	
KUTATELADZE, T. K.	A80-21028	LOTZ, W. G.	
Practical criteria for analyzing the hear hemodynamics of young athletes	rt	Advances in microwave-induced neuroendoo effects - The concept of stress	
	A80-20212	тп с _m	A80-21025
RUZNETSOV, V. S. The effect of aircraft noise on the func	tional	LU, ST. Advances in microwave-induced neuroendoc effects - The concept of stress	rine
state of human operators	A80-21039		A80-21025
l l		M	
		MAGDALENO, R. E.	
LACKNER, J. R. A sudden-stop vestibulovisual test for r assessment of motion sickness manifest	ations	Modeling biodynamic effects of vibration [AD-A073819]	n, fifth year N80-14719
TIMOSOUI D	A80-20444	MAKAROV, G. A. Mechanism of disorder of plastic process	ses in
Influence of hypokinesis on physiologica	1	tissue during prolonged hypokinesia [NASA-TM-75955]	ท80-15799
functions in fowl [NASA-TM-75999]	N80-15778	MALTHE-SORENSSEN, D. The effect of locally applied organophos	
Proton movements in response to a light- electrogenic pump for sodium ions in	dríven	miosis and acetylcholinesterase adapta chronic treatment	
Halobacterium halobium membranes	A80-17696	MATHEY, D. G.	
LAROCHELLE, L. Study on the neuronal circuits implicate postural tremor and hypokinesia	đ in	Left ventricular relaxation and filling different forms of left ventricular hy - An echocardiographic study	
[NASA-TM-76004]	N80-15783		A80-18975
LARSEN, W. E. Some human factors issues in the develop evaluation of cockpit alerting and war		MCCAMBRIDGE, J. J. Approaches to CW agent area detection syairfields	
[NASA-RP-1055] LAWRENCE, G. H. Brain waves and the enhancement of pilot	N80-15821	Philosophy of protection of US aircrews chemical warfare agents	N80-14733 against
	N80-14751		N80-14734
LAWSOH, D. Synthesis and biological screening by no fluorocarbon hydrocarbon compounds for	vel hybrid	Integration of protection against chemic agents with aircrew personal equipment	
artificial blood substitutes [NASA-CR-162537]	N80-14689	MCCLOY, T. H. Effect of peripherally presented visual	
LEACH, C. S. A study of metabolic balance in crewmemb Skylab IV	ers of	<pre>pilot performance during flight simul: [AD-AU73604] MCCONVILLE, J. T.</pre>	พ80-14703
Amino aciduria in weightlessness	A80-20021	Anthropometric sizing, fit-testing and of the MBU-12/P oral-nasal oxygen mas	k
LEONARD, J. I.	A80-20022	[AD-A074723] HCKENZIE, R. E.	N80-14692
A mathematical and experimental simulati hematological response to weightlessne	on of the ess A80-20020	Survey of methods to assess workload [AGARD-AG-246] Concepts of stress	N80-14739
LBONE, C. H. US aircrew chemical defense assemblies		Some insights relative to the man-maching an overview of ten years of research	N80-14742 ne system:
Integration of protection against chemic	N80-14736 al warfare		N80-14745
agents with aircrew personal equipment		An exploratory study of psychophysiolog measurements as indicators of air tra	
LEVITES, Z. P. Effect of prolonged hypokinesia on tissu [NASA-TM-76005]	ne blood flow N80-14688	control sector workload Assessment correlates of workload and p	N80-14755 erformance N80-14758

PERSONAL AUTHOR INDEX POOL, S. L.

MODERN D T			
MCREE, D. I. Soviet and Eastern European research on	hiological	NETTHARK, A.	
effects of microwave radiation	-	Eustachian tube function in selection of airmen A80-20	443
MITORIDO O O	A80-21027	NEUDER, S. H.	
MEITNER, E. R.		Electromagnetic fields in biological media. Par	rt
Micromorphology of neurohypophysis of ra experimental conditions	its under	The SCAT program, multilayered sphere,	
(NASA-TM-75947)	N80-14671	theory and applications	
MELTON, C. E.	NOU-14071	[PB-300904/0] N80-15	804
Workload and stress in air traffic contr	rollers	NICHOLSON, A. N.	
and Stress In all challe cone	N80-14757	Hypnotics and the management of disturbed sleep	
MICHAELSON, S. H.	1.00 11137	NOGUES, C. N80-15	818
Microwave biological effects - An overvi	lew	Bone remodeling in centrifuged rats -	
	A80-21021	Histomorphometric study after an 18-day run	
Advances in microwave-induced neuroendoc	rine	A80-204	450
effects - The concept of stress		NORTHROP, R.	
ETCETE	A80-21025	Health effects of aerosols emitted from an	
MICKLE, M. H.		activated sludge plant	
Modeling and simulation. Volume 10 - Pro of the Tenth Annual Pittsburgh Confere	ceedings	[PB-299583/5] N80-146	596
University of Pittsburgh, Pittsburgh,	Da Annil	HOVIKOVA, N. H.	
25-27, 1979. Part 1 - Biomedical	ra., april	A nonparametric model of detection of signals,	
	A80-20855	observed by a human operator on a CRT screen in the presence of noise	ГIJ
MIDDLEBROOKS, E. J.		A80-194	1150
Waste stabilization lagoon microorganism	removal	NVOTA, J.	114
efficiency and effluent disinfection w	ith chlorine	Influence of hypokinesis on physiological	
[PB-300631/9]	N80-15786	functions in fowl	
HILD, K. H.		[NASA-TM-75999] N80-157	<i>1</i> 78
Occupational exposure to radio-frequency	,		
electromagnetic fields	100 01017	0	
HIQUEL, J.	A80-21017	0000000 0 -	
Review of cell aging in Drosophila and m	Ouse	OCONHOR, W. F.	
martin of ooth aging in propopitio and m	A80-17741	Individual and system performance indices for th air traffic control system	ıe
MOACABIN, J.	230 17771	N80-147	75.4
Synthesis and biological screening by no	vel hybrid	OGDEN, G. D.	750
fluorocarbon hydrocarbon compounds for	use as	Methods for evaluating the physical and effort	
artificial blood substitutes		requirements of Navy tasks: Metabolic.	
[NASA-CR-162537]	N80-14689	performance, and physical ability correlates of	of.
MONTALVO, P. S.		perceived effort	
Special session on vision	WOO 45000	[AD-A072497] N80-147	120
[LBL-9160] MOOREEDE, N. C.	ท80-15802	OLIVER, A.	
Biological rhythms of man living in isol	ation from	Study on the neuronal circuits implicated in	
time cues	acion from	postural tremor and hypokinesia	
	N80-15813	[NASA-TM-76004] N80-157 ONKARAH, B.	83
MOROZOV, L. L.		Three instruments for assessment of WBGT and a	
A mathematical model of the disruption o	f mirror	comparison with WGT (BOTSBALL)	
symmetry in prebiological evolution		[AD-A074979] N80-146	91
***************************************	A80-20680	ORLOV, V. P.	
MOSER, G. W.		Deiters-nucleus potentials evoked by stimulation	ı
The informational structure of DNA, RNA,	and amino	of the neural elements of bones and	
		musculo-cutaneous nerves in animals with the	
The informational structure of DNA, RNA, acid sequences	A80-20856	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed	
The informational structure of DNA, RNA,	A80-20856	musculo-cutaneous nerves in animals with the	
The informational structure of DNA, RNA, acid sequences Information processes in the evolution o synthesis	A80-20856	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed	
The informational structure of DNA, RNA, acid sequences Information processes in the evolution o synthesis MOSSER, E. L.	A80-20856 f protein A80-20857	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed	
The informational structure of DNA, RNA, acid sequences Information processes in the evolution o synthesis MOSSER, E. L. Serum cholesterol levels in selected Air	A80-20856 f protein A80-20857	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed A80-206 P PBARSON, W. H.	82
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Wes	A80-20856 f protein A80-20857	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed A80-206 P PBARSON, W. H. Time simulation of an air surveillance task with	82
The informational structure of DNA, RNA, acid sequences Information processes in the evolution o synthesis MOSSER, E. L. Serum cholesterol levels in selected Air	A80-20856 f protein A80-20857 Force t Point	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed A80-206 P PBARSON, W. H. Time simulation of an air surveillance task with varying amounts of radar information	582
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the West study	A80-20856 f protein A80-20857	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed A80-206 P PBARSON, W. H. Time simulation of an air surveillance task with varying amounts of radar information [AD-A074866] N80-147	582
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Westudy MUELLER, H.	A80-20856 f protein A80-20857 Force t Point A80-20442	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed A80-206 P PBARSON, W. H. Time simulation of an air surveillance task with varying amounts of radar information [AD-A074866] PERELLI, L. P.	582
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Westudy MUELLER, H. Effect of hypogravity on human lymphocytems	A80-20856 f protein A80-20857 Force t Point A80-20442 e activation	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed A80-206 P PBARSON, W. H. Time simulation of an air surveillance task with varying amounts of radar information [AD-A974866] PERELLI, L. P. Physiologic aspects of workload/fatigue/stress	582 1
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Westudy MUELLER, H. Effect of hypogravity on human lymphocytems	A80-20856 f protein A80-20857 Force t Point A80-20442	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed A80-206 P PEARSON, W. H. Time simulation of an air surveillance task with varying amounts of radar information [AD-A074866] PERELLI, L. P. Physiologic aspects of workload/fatigue/stress N80-147	582 1
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Westudy MUELLER, H. Effect of hypogravity on human lymphocyte MUELLER, W. A. Dialysis system	A80-20856 f protein A80-20857 Force t Point A80-20442 e activation	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed A80-206 P PBARSON, W. H. Time simulation of an air surveillance task with varying amounts of radar information [AD-A974866] PERELLI, L. P. Physiologic aspects of workload/fatigue/stress N80-147 PETERSEN, R. C.	582 1
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Westudy MUELLER, H. Effect of hypogravity on human lymphocytem MUELLER, W. A. Dialysis system [NASA-CASE-NPO-14101-1]	A80-20856 f protein A80-20857 Force t Point A80-20442 e activation	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed A80-206 P PEARSON, W. H. Time simulation of an air surveillance task with varying amounts of radar information [AD-A074866] N80-147 PERELLI, L. P. Physiologic aspects of workload/fatigue/stress N80-147 PETERSEN, R. C. Electromagnetic radiation from selected	582 1
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Westudy MUELLER, H. Effect of hypogravity on human lymphocytem BURLLER, W. A. Dialysis system [NASA-CASE-NPO-14101-1] BURPHY, H. R.	A80-20856 f protein A80-20857 Force t Point A80-20442 e activation A80-20446	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed A80-206 P PEARSON, W. H. Time simulation of an air surveillance task with varying amounts of radar information [AD-A074866] PERELLI, L. P. Physiologic aspects of workload/fatigue/stress N80-147 PETERSEN, R. C. Electromagnetic radiation from selected telecommunications systems	582 122
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Westudy MUELLER, H. Effect of hypogravity on human lymphocytem MUELLER, W. A. Dialysis system [NASA-CASE-NPO-14101-1]	A80-20856 f protein A80-20857 Force t Point A80-20442 e activation A80-20446	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed A80-206 P PBARSON, W. H. Time simulation of an air surveillance task with varying amounts of radar information [AD-A074866] N80-147 PERELLI, L. P. Physiologic aspects of workload/fatigue/stress N80-147 PETERSEN, R. C. Electromagnetic radiation from selected telecommunications systems A80-210 PEUCHMAUR, H.	582 122
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Westudy MUELLER, H. Effect of hypogravity on human lymphocytem MUELLER, W. A. Dialysis system [NASA-CASE-NPO-14101-1] MURPHY, H. R. Concepts of workload	A80-20856 f protein A80-20857 Force t Point A80-20442 e activation A80-20446	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed A80-206 P PEARSON, W. H. Time simulation of an air surveillance task with varying amounts of radar information [AD-A074866] PEBELLI, L. P. Physiologic aspects of workload/fatigue/stress N80-147 PETERSEN, R. C. Electromagnetic radiation from selected telecommunications systems A80-210 PEUCHMAUR, H. Bone remodeling in centrifuged rats -	582 122
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Westudy MUELLER, H. Effect of hypogravity on human lymphocytem BURLLER, W. A. Dialysis system [NASA-CASE-NPO-14101-1] BURPHY, H. R.	A80-20856 f protein A80-20857 Porce t Point A80-20442 e activation A80-20446 N80-14687	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed A80-206 P PEARSON, W. H. Time simulation of an air surveillance task with varying amounts of radar information [AD-A074866] N80-147 PERELLI, L. P. Physiologic aspects of workload/fatigue/stress N80-147 PETERSEN, R. C. Electromagnetic radiation from selected telecommunications systems A80-210 PEUCHHAUR, H. Bone remodeling in centrifuged rats - Histomorphometric study after an 13-day run	18
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Westudy MUELLER, H. Effect of hypogravity on human lymphocyte MURLLER, W. A. Dialysis system [NASA-CASE-NPO-14101-1] MURPHY, H. R. Concepts of workload Concepts of fatigue	A80-20856 f protein A80-20857 Force t Point A80-20442 e activation A80-20446	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed A80-206 P PBARSON, W. H. Time simulation of an air surveillance task with varying amounts of radar information [AD-A074866] N80-147 PERELLI, L. P. Physiologic aspects of workload/fatigue/stress N80-147 PETERSEN, R. C. Electromagnetic radiation from selected telecommunications systems A80-210 PBUCHMAUR, H. Bone remodeling in centrifuged rats - Histomorphometric study after an 13-day run A80-204	18
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Westudy MUELLER, M. Effect of hypogravity on human lymphocytem [NASA-CASE-NPO-14101-1] MURPHY, M. R. Concepts of workload Concepts of fatigue MURRAY, R. H.	A80-20856 f protein A80-20857 Force t Point A80-20442 e activation A80-20446 N80-14687 N80-14740 N80-14741	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed A80-206 P PEARSON, W. H. Time simulation of an air surveillance task with varying amounts of radar information [AD-A074866] PERELLI, L. P. Physiologic aspects of workload/fatigue/stress N80-147 PETERSEN, R. C. Electromagnetic radiation from selected telecommunications systems A80-210 PEUCHMAUR, H. Bone remodeling in centrifuged rats - Histomorphometric study after an 13-day run A80-2049	18
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Westudy MUELLER, H. Effect of hypogravity on human lymphocyte MURLLER, W. A. Dialysis system [NASA-CASE-NPO-14101-1] MURPHY, H. R. Concepts of workload Concepts of fatigue	A80-20856 f protein A80-20857 Force t Point A80-20442 e activation A80-20446 N80-14687 N80-14740 N80-14741	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed A80-206 P PEARSON, W. H. Time simulation of an air surveillance task with varying amounts of radar information [AD-A074866] PERELLI, L. P. Physiologic aspects of workload/fatigue/stress N80-147 PETERSEN, R. C. Electromagnetic radiation from selected telecommunications systems A80-210 PEUCHHAUR, H. Bone remodeling in centrifuged rats - Histomorphometric study after an 13-day run A80-204: PEVZNER, L. Z. RNA content in motor and sensory neurons and	18
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Westudy MUELLER, M. Effect of hypogravity on human lymphocytem MUELLER, W. A. Dialysis system [NASA-CASE-NPO-14101-1] MURPHY, M. R. Concepts of workload Concepts of fatigue MURRAY, R. H. Recent advances in Aeronautical and Space [AGARD-CP-265]	A80-20856 f protein A80-20857 Porce t Point A80-20442 e activation A80-20446 N80-14687 N80-14740 N80-14741 e Medicine	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed A80-206 P PEARSON, W. H. Time simulation of an air surveillance task with varying amounts of radar information [AD-A074866] N80-147 PERELLI, L. P. Physiologic aspects of workload/fatigue/stress N80-147 PETERSEN, R. C. Electromagnetic radiation from selected telecommunications systems A80-210 PEUCHMAUR, H. Bone remodeling in centrifuged rats - Histomorphometric study after an 13-day run A80-204 PEVZNER, L. Z. RNA content in motor and sensory neurons and surrounding neuroglia of mouse spinal cord under	18
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Westudy MUELLER, M. Effect of hypogravity on human lymphocytem MUELLER, W. A. Dialysis system [NASA-CASE-NPO-14101-1] MURPHY, M. R. Concepts of workload Concepts of fatigue MURRAY, R. H. Recent advances in Aeronautical and Space [AGARD-CP-265]	A80-20856 f protein A80-20857 Porce t Point A80-20442 e activation A80-20446 N80-14687 N80-14740 N80-14741 e Medicine	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed A80-206 P PEARSON, W. H. Time simulation of an air surveillance task with varying amounts of radar information [AD-A074866] PERELLI, L. P. Physiologic aspects of workload/fatigue/stress N80-147 PETERSEN, R. C. Electromagnetic radiation from selected telecommunications systems A80-210 PEUCHHAUR, H. Bone remodeling in centrifuged rats - Histomorphometric study after an 13-day run A80-204: PEVZNER, L. Z. RNA content in motor and sensory neurons and	18
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Westudy MUELLER, H. Effect of hypogravity on human lymphocyte MURLER, W. A. Dialysis system [NASA-CASE-NPO-14101-1] HURPHY, H. R. Concepts of workload Concepts of fatigue MURRAY, R. H. Recent advances in Aeronautical and Space [AGARD-CP-265]	A80-20856 f protein A80-20857 Porce t Point A80-20442 e activation A80-20446 N80-14687 N80-14740 N80-14741 e Medicine	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed P P P P P P P P P P P P P	122 44 18
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Westudy MUELLER, H. Effect of hypogravity on human lymphocytem [NASA-CASE-NPO-14101-1] MURPHY, H. R. Concepts of workload Concepts of fatigue MURRAY, R. H. Recent advances in Aeronautical and Space [AGARD-CP-265] N NACHTWEY, D. S.	A80-20856 f protein A80-20857 Porce t Point A80-20442 e activation A80-20446 N80-14687 N80-14740 N80-14741 e Medicine	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed P P PEARSON, W. H. Time simulation of an air surveillance task with varying amounts of radar information [AD-A074866] N80-147 PERELLI, L. P. Physiologic aspects of workload/fatigue/stress N80-147 PETERSEN, R. C. Electromagnetic radiation from selected telecommunications systems A80-210 PEUCHHAUR, H. Bone remodeling in centrifuged rats - Histomorphometric study after an 13-day run A80-204: PEVZNER, L. Z. RNA content in motor and sensory neurons and surrounding neuroglia of mouse spinal cord unde conditions of hypodynamia and following normalization [NSSA-TM-75983] POIRIER, L. J.	122 44 18
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Westudy MUELLER, H. Effect of hypogravity on human lymphocyte MURLER, W. A. Dialysis system [NASA-CASE-NPO-14101-1] HURPHY, H. R. Concepts of workload Concepts of fatigue MURRAY, R. H. Recent advances in Aeronautical and Space [AGARD-CP-265]	A80-20856 f protein A80-20857 Porce t Point A80-20442 e activation A80-20446 N80-14687 N80-14740 N80-14741 e Medicine N80-14678	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed P P PEARSON, W. H. Time simulation of an air surveillance task with varying amounts of radar information [AD-A074866] PEBELLI, L. P. Physiologic aspects of workload/fatigue/stress N80-147 PETERSEN, R. C. Electromagnetic radiation from selected telecommunications systems A80-210 PEUCHHAUR, H. Bone remodeling in centrifuged rats - Histomorphometric study after an 13-day run A80-204: PEVZNER, L. Z. RNA content in motor and sensory neurons and surrounding neuroglia of mouse spinal cord under conditions of hypodynamia and following normalization [NSSA-TM-75983] POIRIER, L. J. Study on the neuronal circuits implicated in	122 44 18
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Westudy MUELLER, H. Effect of hypogravity on human lymphocyte MURLLER, W. A. Dialysis system [NASA-CASE-NPO-14101-1] HURPHY, H. R. Concepts of workload Concepts of fatigue MURRAY, R. H. Recent advances in Aeronautical and Space [AGARD-CP-265] N NACHTWEY, D. S. Radiofrequency radiation	A80-20856 f protein A80-20857 Porce t Point A80-20442 e activation A80-20446 N80-14687 N80-14740 N80-14741 e Medicine	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed P PBARSON, W. H. Time simulation of an air surveillance task with varying amounts of radar information [AD-A074866] N80-147 PERELLI, L. P. Physiologic aspects of workload/fatigue/stress N80-147 PETERSEN, R. C. Electromagnetic radiation from selected telecommunications systems A80-210 PEUCHHAUR, H. Bone remodeling in centrifuged rats - Histomorphometric study after an 13-day run A80-204: PEVZNER, L. Z. RNA content in motor and sensory neurons and surrounding neuroglia of mouse spinal cord under conditions of hypodynamia and following normalization [NASA-TM-75983] N80-146* POIRIER, L. J. Study on the neuronal circuits implicated in postural tremor and hypokinesia	18 50 er 72
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Westudy MUELLER, H. Effect of hypogravity on human lymphocyte MUELLER, W. A. Dialysis system [NASA-CASE-NPO-14101-1] MURPHY, H. R. Concepts of workload Concepts of fatigue MURRAY, R. H. Recent advances in Aeronautical and Space [AGARD-CP-265] N NACHTWEY, D. S. Radiofrequency radiation NEGULESCO, J. A.	A80-20856 f protein A80-20857 Force t Point A80-20442 e activation A80-20446 N80-14687 N80-14740 N80-14741 e Medicine N80-14678	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed A80-206 P PEARSON, W. H. Time simulation of an air surveillance task with varying amounts of radar information [AD-A074866] PERELLI, L. P. Physiologic aspects of workload/fatigue/stress N80-147 PETERSEN, R. C. Electromagnetic radiation from selected telecommunications systems A80-210 PEUCHHAUR, H. Bone remodeling in centrifuged rats - Histomorphometric study after an 13-day run A80-204: PEVZNER, L. Z. RNA content in motor and sensory neurons and surrounding neuroglia of mouse spinal cord under conditions of hypodynamia and following normalization [NASA-TM-75983] POIRIER, L. J. Study on the neuronal circuits implicated in postural tremor and hypokinesia [NASA-TM-76004] N80-1578	18 50 er 72
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Westudy MUELLER, H. Effect of hypogravity on human lymphocyte MUELLER, W. A. Dialysis system [NASA-CASE-NPO-14101-1] MURPHY, H. R. Concepts of workload Concepts of fatigue MURRAY, R. H. Recent advances in Aeronautical and Space [AGARD-CP-265] N NACHTWEY, D. S. Radiofrequency radiation NEGULESCO, J. A. Hypergravity and estrogen effects on avia	A80-20856 f protein A80-20857 Force t Point A80-20442 e activation A80-20446 N80-14687 N80-14740 N80-14741 e Medicine N80-14678	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed P P P P P P P P P P P P P	18 50 er 72
The informational structure of DNA, RNA, acid sequences Information processes in the evolution of synthesis MOSSER, E. L. Serum cholesterol levels in selected Air calets compared with levels in the Westudy MUELLER, H. Effect of hypogravity on human lymphocyte MUELLER, W. A. Dialysis system [NASA-CASE-NPO-14101-1] MURPHY, H. R. Concepts of workload Concepts of fatigue MURRAY, R. H. Recent advances in Aeronautical and Space [AGARD-CP-265] N NACHTWEY, D. S. Radiofrequency radiation NEGULESCO, J. A.	A80-20856 f protein A80-20857 Force t Point A80-20442 e activation A80-20446 N80-14687 N80-14740 N80-14741 e Medicine N80-14678	musculo-cutaneous nerves in animals with the cerebrum and cerebellum removed A80-206 P PEARSON, W. H. Time simulation of an air surveillance task with varying amounts of radar information [AD-A074866] PERELLI, L. P. Physiologic aspects of workload/fatigue/stress N80-147 PETERSEN, R. C. Electromagnetic radiation from selected telecommunications systems A80-210 PEUCHHAUR, H. Bone remodeling in centrifuged rats - Histomorphometric study after an 13-day run A80-204: PEVZNER, L. Z. RNA content in motor and sensory neurons and surrounding neuroglia of mouse spinal cord under conditions of hypodynamia and following normalization [NASA-TM-75983] POIRIER, L. J. Study on the neuronal circuits implicated in postural tremor and hypokinesia [NASA-TM-76004] N80-1578	18 50 er 72

PERSONAL AUTHOR INDEX

PO	POVA,	N.	K.

DODOWA R F		MVMA Two-Dimensional Crash Victim Simula	tion,
POPOVA, H. K. Temperature compensation of the metaboli	sm of	version 4, volume 2	
serotonin in the brain of hibernating	mammals A80-18082	[PB-299306/1] NVMA Two-Dimensional Crash Victim Simula	N80-14726 tion.
POZDBIAKOV, A. L.		version 4, volume 3	
pffort of 1 alpha-hydroxy-cholecalcifero	1 and	[PB-299307/9]	N80-14727
varying phosphorous content in the die calcium phosphorous metabolism in hypo	t on kinetic rats	ROBINETTE, K. Design criteria for characterizing indiv	iduals in
Calcium phosphotons and an in-	A80-20445	the extreme upper and lower body size	
PRASASSARAKICH, P. Modeling of blood flow in vessels of the	•	[AD-A072353] ROBBERT, W.	N80-14721
microcirculation		Evaluation of human strain during interr	upted
	N80-14685	exposure to vibration	A80-17726
PRINTY, T. H. A consideration of factors contributing	to	ROMANKO, A. M.	
strength differences in men and women	N80-14694	Polycardiographic research with a single electrocardiograph	-channel
[AD-A072671] PRODIN, V. I.	N8U-14094	electrocardiograps	A80-20213
Perspectives of the utilization of hyper	baric	ROOT, D. B.	againgt
oxygenation in aviation medicine	A80-20500	Philosophy of protection of US aircrews chemical warfare agents	against
PROKHOROV, V. Y.			N80-14734
The course of experimental staphylococcu infection in albino mice during action	is of	ROSCOB, A. H. Handling qualities, workload and heart r	ate
certain factors of space flight			N80-14750
[NASA-TM-75973]	N80-15779	ROSCOB, S. W. When day is done and shadows fall, we mi	ss the
PROKSOVA, E. Micromorphology of neurohypophysis of ra	ts under	airport most of all	
experimental conditions	N80-14671	ROSEHBERT, S.	A80-19024
[NASA-TH-75947]	800-14071	Health effects of aerosols emitted from	an
Q		activated sludge plant [PB-299583/5]	N80-14696
QUICK, R. F., JR.		ROTORDO, G.	
Theoretical problems in modeling color	grating	Some considerations concerning methods to and assess workload in aircraft pilots	
detection	A80-20861	and assess workload in afforate priors	N80-14743
_		ROUSE, W. B. Mathematical concepts for modeling human	hehavior
R		in complex man-machine systems	
RABOUTET, J.		POSTEORI W D	A80-19025
Supersonic aerial transport: Medical amphysiological aspects	aa	ROZAHOVA, V. D. Activity of cholinesterases of blood and	l heart in
	N80-14683	rats of different sex and age during mails to a loads and hypokinesia	uscular
RADOMSKI, N. W. Development of 'sports anemia' in physic	cally fit	[NASA-TH-75951]	N80-15781
Development of 'sports anemia' in physic men after daily sustained submaximal o	exercise	[NASA-TH-75951] RUMMEL, J. A.	
Development of 'sports anemia' in physic men after daily sustained submaximal		[NASA-TM-75951]	
Development of 'sports anemia' in physic men after daily sustained submaximal of RAMBAUT, P. C. A study of metabolic balance in crewmen	exercise A80-20448	[NASA-TH-75951] RUMMEL, J. A.	sness
Development of 'sports anemia' in physic men after daily sustained submaximal of RAMBAUT, P. C.	exercise A80-20448 bers of	[NASA-TH-75951] RUMMEL, J. A.	sness
Development of 'sports anemia' in physic men after daily sustained submaximal of RAMBAUT, P. C. A study of metabolic balance in crewmen	exercise A80-20448 bers of A80-20021	[NASA-TH-75951] RUMHEL, J. A. Exercise response to simulated weightles S SABISTON, B. H.	ssness A80-20019
Development of 'sports anemia' in physic men after daily sustained submaximal of RABBAUT, P. C. A study of metabolic balance in crewment Skylab IV Amino aciduria in weightlessness	exercise	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic	sness A80-20019
Development of 'sports anemia' in physic men after daily sustained submaximal of RAMBAUT, P. C. A study of metabolic balance in crewment Skylab IV	exercise	[NASA-TH-75951] RUMMEL, J. A. Exercise response to simulated weightles Sabiston, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal e	sness A80-20019
Development of 'sports anemia' in physic men after daily sustained submaximal of RAMBAUT, P. C. A study of metabolic balance in crewment Skylab IV Amino aciduria in weightlessness Physiological factors in space operation Emphasis on space shuttle	exercise	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal of SALLES-CUBHA, S. X.	ssness A80-20019 cally fit exercise
Development of 'sports anemia' in physic men after daily sustained submaximal of RAMBAUT, P. C. A study of metabolic balance in crewment Skylab IV Amino aciduria in weightlessness Physiological factors in space operation	A80-20448 bers of A80-20021 A80-20022 as. B80-14682	[NASA-TH-75951] RUMMEL, J. A. Exercise response to simulated weightles Sabiston, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal e	A80-20019 A80-20019 cally fit exercise A80-20448
Development of 'sports anemia' in physic men after daily sustained submaximal of RABBAUT, P. C. A study of metabolic balance in crewment Skylab IV Amino aciduria in weightlessness Physiological factors in space operation Emphasis on space shuttle RANDLE, R. J., JR. Some human factors issues in the develop evaluation of cockpit alerting and war	exercise	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal es SALLES-CUBHA, S. X. Steady magnetic fields in noninvasive electromagnetic flowmetry	ssness A80-20019 cally fit exercise
Development of 'sports anemia' in physic men after daily sustained submaximal of RAMBAUT, P. C. A study of metabolic balance in crewment Skylab IV Amino aciduria in weightlessness Physiological factors in space operation Emphasis on space shuttle RAMDLE, R. J., JR. Some human factors issues in the development of the state o	exercise	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal of the second submaximal second submaximal for the secon	A80-20019 A80-20019 cally fit exercise A80-20448
Development of 'sports anemia' in physic men after daily sustained submaximal of RAMBAUT, P. C. A study of metabolic balance in crewment Skylab IV Amino aciduria in weightlessness Physiological factors in space operation Emphasis on space shuttle RAMDLE, R. J., JR. Some human factors issues in the develope evaluation of cockpit alerting and was [NASA-RP-1055]	exercise	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal of SALLES-CUBHA, S. X. Steady magnetic fields in noninvasive electromagnetic flowmetry SANCES, A., JR.	ally fit exercise A80-21033
Development of 'sports anemia' in physic men after daily sustained submaximal of RAMBAUT, P. C. A study of metabolic balance in crewment Skylab IV Amino aciduria in weightlessness Physiological factors in space operation Emphasis on space shuttle RAMDLE, R. J., JR. Some human factors issues in the develope evaluation of cockpit alerting and was [NASA-RP-1055] REIMBERG, A. Circadian and circannual rhythms in head	exercise	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal of the standard submaximal submaximal submaximal of the standard submaximal	ally fit exercise A80-200448 A80-21033
Development of 'sports anemia' in physic men after daily sustained submaximal of RABBAUT, P. C. A study of metabolic balance in crewment Skylab IV Amino aciduria in weightlessness Physiological factors in space operation Emphasis on space shuttle RANDLE, R. J., JR. Some human factors issues in the develope valuation of cockpit alerting and war [NASA-RP-1055] REIMBERG, A. Circadian and circannual rhythms in head to the shift work: A chronologic	exercise	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal of the submaximal of	ally fit exercise A80-200448 A80-21033
Development of 'sports anemia' in physic men after daily sustained submaximal of RAMBAUT, P. C. A study of metabolic balance in crewment Skylab IV Amino aciduria in weightlessness Physiological factors in space operation Emphasis on space shuttle RAMBLE, R. J., JR. Some human factors issues in the develope valuation of cockpit alerting and war [NASA-RP-1055] RETHEREG, A. Circadian and circannual rhythms in head to the control of the core o	### A80-20448 bers of ### A80-20021 ### A80-20022 ### A80-14682 ### A80-14682 ### A80-15821 ### A80-15807 ### A80-15815	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal of the standard submaximal submaximal submaximal of the standard submaximal	ally fit exercise A80-200448 A80-21033
Development of 'sports anemia' in physic men after daily sustained submaximal of RABBAUT, P. C. A study of metabolic balance in crewment Skylab IV Amino aciduria in weightlessness Physiological factors in space operation Emphasis on space shuttle RAHDLE, R. J., JR. Some human factors issues in the developevaluation of cockpit alerting and war [NASA-RP-1055] REIMBERG, A. Circadian and circannual rhythms in head Tolerance to shift work: A chronologic REINOLDS, J. H. Waste stabilization lagoon microorganis efficiency and effluent disinfection	A80-20448 bers of A80-20021 A80-20022 ns. N80-14682 pment and rning systems N80-15821 lthy adults N80-15807 approach N80-15815 m removal with chlorine	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal of the submaximal of	ally fit exercise A80-200448 A80-21033 A80-21033 workload
Development of 'sports anemia' in physic men after daily sustained submaximal of RAMBAUT, P. C. A study of metabolic balance in crewment Skylab IV Amino aciduria in weightlessness Physiological factors in space operation Emphasis on space shuttle RAHDLE, R. J., JR. Some human factors issues in the develope valuation of cockpit alerting and war [NASA-RP-1055] REIMBERG, A. Circadian and circannual rhythms in heat Tolerance to shift work: A chronologic REYNOLDS, J. H. Waste stabilization lagoon microorganis efficiency and effluent disinfection [PB-300631/9]	axercise	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal of the second submaximal o	ally fit exercise
Development of 'sports anemia' in physic men after daily sustained submaximal of the	A80-20448 bers of A80-20021 A80-20022 ns. M80-14682 pment and rning systems N80-15821 lthy adults N80-15807 approach N80-15815 m removal with chlorine N80-15786	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal of the submaximal of	cally fit exercise A80-200448 A80-21033 A80-21033 workload N80-14749 aptic on the
Development of 'sports anemia' in physic men after daily sustained submaximal of RABBAUT, P. C. A study of metabolic balance in crewment Skylab IV Amino aciduria in weightlessness Physiological factors in space operation Emphasis on space shuttle RANDLE, R. J., JR. Some human factors issues in the develope valuation of cockpit alerting and war [NASA-RP-1055] RETUBERG, A. Circadian and circannual rhythms in heat Tolerance to shift work: A chronologic REYNOLDS, J. H. Waste stabilization lagoon microorganis efficiency and effluent disinfection [PB-300631/9] RICHARDSON, B.	A80-20448 bers of A80-20021 A80-20022 ns. W80-14682 pment and rning systems W80-15821 lthy adults W80-15807 approach W80-15815 m removal with chlorine W80-15786 ophylactic	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal of the submaximal of t	ally fit exercise A80-20048 A80-20048 A80-21033 Workload N80-14749
Development of 'sports anemia' in physic men after daily sustained submaximal of the	A80-20448 bers of A80-20021 A80-20022 ns. N80-14682 pment and rning systems N80-15821 lthy adults N80-15807 approach N80-15815 m removal with chlorine N80-15786 ophylactic N80-14730	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal of the submaximal of	ally fit exercise A80-21033 A80-21033 workload N80-14749 aptic on the cleus A80-20681 ical
Development of 'sports anemia' in physic men after daily sustained submaximal of RAMBAUT, P. C. A study of metabolic balance in crewment Skylab IV Amino aciduria in weightlessness Physiological factors in space operation Emphasis on space shuttle RAMDLE, R. J., JR. Some human factors issues in the developevaluation of cockpit alerting and war [NASA-RP-1055] REIMBERG, A. Circadian and circannual rhythms in head to the companion of pyridostigmine as a preadent for aircrew	exercise A80-20448 bers of A80-20021 A80-20022 ns. N80-14682 pment and rning systems N80-15821 lthy adults N80-15807 approach N80-15815 m removal with chlorine N80-15786 ophylactic N80-14730 lots	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal of the second submaximal submaximal of the second submaximal submaximal of the second submaximal submaxima	ally fit exercise A80-21033 A80-21033 workload N80-14749 aptic on the cleus A80-20681 ical
Development of 'sports anemia' in physic men after daily sustained submaximal of the men after daily and the men a	### A80-20448 bers of ### A80-20021 ### A80-20022 ### A80-14682 ### A80-14682 ### A80-15821 ### A80-15807 ### A80-15807 ### A80-15815 ### removal ### with chlorine ### ### ### ### ### ### ### ### ###	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal of the submaximal of	ally fit exercise A80-21033 A80-21033 workload N80-14749 aptic on the cleus A80-20681 ical
Development of 'sports anemia' in physic men after daily sustained submaximal of the men after daily and the men aciduria in weightlessness Physiological factors in space operation Emphasis on space shuttle RAHDLE, R. J., JR. Some human factors issues in the develope valuation of cockpit alerting and ware [NASA-RP-1055] RETHEBERG, A. Circadian and circannual rhythms in head to the men and circannual rhythms in head to the men acide and effluent disinfection (PB-300631/9) RICHARDSON, B. Consideration of pyridostigmine as a pragent for aircrew RICHTER, E. D. Heat stress exposure of aerial spray pi ROBBINS, D. H. Notor Vehicle Manufacturers Association	### A80-20448 bers of ### A80-20021 ### A80-20022 ### A80-20022 ### A80-14682 ### A80-14682 ### A80-15821 ### A80-15821 ### A80-15807 ### A80-15815 ### Fenoval ### ### ### A80-15786 ### Ophylactic ### M80-14730 ### A80-20451 ### A80-20451 ### A80-20451 ### A80-20451 ### A80-20451 ### A80-20451	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal of the second submaximal submaximal submaximal of the second submaximal of the second submaximal of the s	ally fit exercise
Development of 'sports anemia' in physic men after daily sustained submaximal of the men after daily sustained in crewment Skylab IV Amino aciduria in weightlessness Physiological factors in space operation Emphasis on space shuttle RANDLE, R. J., JR. Some human factors issues in the developevaluation of cockpit alerting and ware [NASA-RP-1055] REIMBERG, A. Circadian and circannual rhythms in head to the men and circannual rhythms in head to the men after daily submaximal correction [PB-300631/9] REINOLDS, J. H. Waste stabilization lagoon microorganis efficiency and effluent disinfection [PB-300631/9] RICHARDSON, B. Consideration of pyridostigmine as a pragent for aircrew RICHTER, R. D. Heat stress exposure of aerial spray pi ROBBINS, D. H. Motor Vehicle Manufacturers Association Two-Dimensional Crash Victim Simulati system: Self-study guide	A80-20448 bers of A80-20021 A80-20022 as. W80-14682 pment and rning systems W80-15821 lthy adults W80-15807 approach W80-15815 m removal with chlorine W80-15786 ophylactic W80-14730 lots A80-20451 (MVMA) on tutorial	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal of the submaximal of	ally fit exercise
Development of 'sports anemia' in physic men after daily sustained submaximal of the men after daily of metabolic balance in crewment Skylab IV Amino aciduria in weightlessness Physiological factors in space operation Emphasis on space shuttle RAHDLE, R. J., JR. Some human factors issues in the develope valuation of cockpit alerting and ware [NASA-RP-1055] RETHBERG, A. Circadian and circannual rhythms in head to the men after distinguishing and efficiency and effluent disinfection (PB-300631/9) RICHARDSON, B. Consideration of pyridostigmine as a pragent for aircrew RICHTER, E. D. Heat stress exposure of aerial spray pi ROBBINS, D. H. Notor Vehicle Manufacturers Association Two-Dimensional Crash Victim Simulati system: Self-study guide [PB-299256/8]	### A80-20448 bers of ### A80-20021 ### A80-20022 ### A80-20022 ### A80-14682 ### A80-14682 ### A80-15821 ### A80-15821 ### A80-15807 ### A80-15815 ### Femoval ### With chlorine ### N80-15786 ### Ophylactic ### N80-14730 ### 10ts ### A80-20451 ### (#\formall) ### N80-14723	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal of the second submaximal submaximal submaximal of the second submaximal of the second submaximal of th	ally fit exercise
Development of 'sports anemia' in physic men after daily sustained submaximal of men after daily sustained submaximal of men after daily sustained submaximal of the submaxima	### A80-20448 bers of ### A80-20021 ### A80-20022 ### A80-20022 ### A80-14682 ### A80-14682 ### A80-15821 ### A80-15807 ### A80-15807 ### A80-15815 ### removal ### With chlorine ### N80-15786 ### Ophylactic ### N80-14730 ### N80-14723 ### N80-14723 ### N80-14723 ### N80-14723 ### N80-14723	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal of the submaximal of	ally fit exercise
Development of 'sports anemia' in physic men after daily sustained submaximal of the men after daily of metabolic balance in crewment Skylab IV Amino aciduria in weightlessness Physiological factors in space operation Emphasis on space shuttle RAHDLE, R. J., JR. Some human factors issues in the develope valuation of cockpit alerting and ware [NASA-RP-1055] REIMBERG, A. Circadian and circannual rhythms in head to the men and effluent disinfection [PB-300631/9] RICHARDSON, B. Consideration of pyridostigmine as a pragent for aircrew RICHTER, E. D. Heat stress exposure of aerial spray pi ROBBINS, D. H. Motor Vehicle Manufacturers Association Two-Dimensional Crash Victim Simulati system: Self-study guide [PB-299256/8] Motor Vehicle Manufacturers Association Two-Dimensional Crash Victim Simulati system: Audio-visual program	exercise A80-20448 bers of A80-20021 A80-20022 ns. N80-14682 pment and rning systems N80-15821 lthy adults N80-15807 approach N80-15815 m removal with chlorine N80-15786 ophylactic N80-14730 lots A80-20451 (MVMA) on tutorial N80-14723 (NYMA) on tutorial	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal of the second submaximal submaximal submaximal of post-symmation of the second submaximal submaximal of the second submaximal submaximal submaximal submaximal submaximal of post-symmation of the second submaximal submaximal of post-symmatic submaximal submaximal of post-symmatic submaximal submaximal submaximal of post-symmatic submaximal submax	ally fit exercise
Development of 'sports anemia' in physic men after daily sustained submaximal of men after daily sustained submaximal of men after daily sustained submaximal of the submaxima	exercise	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal of the second submaximal submaximal submaximal of post-symmation of the second submaximal submaximal of the second submaximal submaximal submaximal submaximal submaximal of post-symmation of the second submaximal submaximal of post-symmatic submaximal submaximal of post-symmatic submaximal submaximal submaximal of post-symmatic submaximal submax	ally fit exercise
Development of 'sports anemia' in physic men after daily sustained submaximal of MABBAUT, P. C. A study of metabolic balance in crewment Skylab IV Amino aciduria in weightlessness Physiological factors in space operation Emphasis on space shuttle RANDLE, R. J., JR. Some human factors issues in the develop evaluation of cockpit alerting and war [NASA-RP-1055] REIMBERG, A. Circadian and circannual rhythms in head tolerance to shift work: A chronologic REINOLDS, J. H. Waste stabilization lagoon microorganis efficiency and effluent disinfection [PB-300631/9] RICHARDSON, B. Consideration of pyridostigmine as a pragent for aircrew RICHTER, E. D. Heat stress exposure of aerial spray pi ROBBINS, D. H. Notor Vehicle Manufacturers Association Two-Dimensional Crash Victim Simulati system: Self-study guide [PB-299256/8] Motor Vehicle Manufacturers Association Two-Dimensional Crash Victim Simulati system: Audio-visual program [PB-299257/6]	exercise	[NASA-TH-75951] RUMBEL, J. A. Exercise response to simulated weightles S SABISTON, B. H. Development of 'sports anemia' in physic men after daily sustained submaximal of the second submaximal submaximal submaximal of post-symmation of the second submaximal submaximal of the second submaximal submaximal submaximal submaximal submaximal of post-symmation of the second submaximal submaximal of post-symmatic submaximal submaximal of post-symmatic submaximal submaximal submaximal of post-symmatic submaximal submax	ally fit exercise

PERSONAL AUTHOR INDEX USHAKOV, A. S.

SCHERER, K.		SOKOLOV, N. E.	
Synthesis and biological screening by no	vel hybrid	The effects of hypodynamia and hypokines	ia on the
fluorocarbon hydrocarbon compounds for	use as	arterial bed of pelvic limb muscles in	
artificial blood substitutes		[NASA-TM-75984]	NEO-14673
[NASA-CR-162537]	N80-14689	SOLI, N. E.	1100 14073
SCHIFLETT, S. G.		The effect of locally applied organophos	nhatee on
Aircrew workload assessment techniques		miosis and acetylcholinesterase adapta	tion to
	N80-14746	chronic treatment	CION CO
SCHNEIDER, B.		Chronic creatment	NOO-14721
Methodological and conceptual issues in		CDIDICURU U D	N80-14731
understanding ability-performance rela-	tianchina	SPIRICHEV, V. B.	
[AD-A068894]		Effect of 1 alpha-hydroxy-cholecalcifero	
	N80-14708	varying phosphorous content in the die	t on
SCHWEIDER, R. C.		calcium phosphorous metabolism in hypo	kinetic rats
Motion sickness. I - A theory. II - A cl	inical		A80-20445
study based on surgery of cerebral hem		STEPANOVA, Y. A.	
lesions. III - A clinical study based	on surgery	Model task for the dynamics of an underw	ater
of posterior fossa tumors		two-legged walker	
	A80-20452	[NASA-TM-75697]	N80-15822
SCHUBERT, P. H.		STONE, B. M.	
Regenerative CO2 removal for PLSS application	ation	Hypnotics and the management of disturbe	d sleep
[NASA-CR-160419]	N80-14718		พ80-15818
SCHWAN, H. P.		STROSCHEIN, L. A.	
RF-field interactions with biological sys	stems -	Three instruments for assessment of WBGT	and a
Electrical properties and biophysical		comparison with WGT (BOTSBALL)	unu u
	A80-21030	[AD-A074979]	N80-14691
SCHWANK, J. C. H.		[13 2014373]	14051
Effect of peripherally presented visual s	signals on	-	
pilot performance during flight simulat			
[AD-A073604]	N80-14703	711171 H	
SELF, H. C.	NO 0-14703	TANAKA, H.	
	ah a	Body temperature and heart rate relation	ships
Daytime visual acuity of observers through	yn a	during submaximal bicycle ergometer ex	
window with and without binoculars	V00 45000		A80-17728
[AD-A074722]	N80-15800	TARAKANOVA, O. I.	
SHAGINIAN, V. S.		Rat reaction to hypokinesia after prior a	daptation
Practical criteria for analyzing the hear	rt	to hypoxia	
hemodynamics of young athletes		[NASA-TM ·75964]	N80-15782
	A80-20212	TARASENKO, G. I.	
SHAKET, E.		The effect of aircraft noise on the funct	ional
Man-machine communication in computer-aid	led remote	state of human operators	
manipulation			A80-21039
[AD-A074566]	N80-15823	TEBBETS, I.	21037
SHEPELEV, Y. Y.		Anthropometric sizing, fit-testing and en	ral nation
Biological systems for human life support	t: Review	of the dBU-12/P oral-nasal oxygen mask	arua cron
of the research in the USSR		[AD-A071723]	NOO 14600
[NASA-TM-76018]	N80-14717	TERRANOVA, T.	N80-14692
SHILOV, V. H.	100 14717		
The course of experimental staphylococcus	-	Synthesis and biological screening by nov	
infection in albino mice during action		fluorocarbon hydrocarbon compounds for	use as
	Or.	artificial blood substitutes	
certain factors of space flight	NO.0 15770	[NASA-CR-162537]	N80-14689
[NASA-TM-75973]	N80-15779	TESAROVA, D.	
SHOENBERGER, R. W.	.	Influence of hypokinesis on physiological	
Combined effects of broadband noise and o	combrex	functions in fowl	
waveform vibration on cognitive perform		[NASA-TM-75999]	N80-15778
	A80-20441	THORELL, L. G.	
SIEGERT, R.		Visual cortical neurons - Are bars or gra	tings the
Left ventricular relaxation and filling p		optimal stimuli	
different forms of left ventricular hyp	ertrophy		A80-17711
- An echocardiographic study		TJERNSTROM, O.	
	A80-18975	Eustachian tube function in selection of	airmen
SILVERHAN, C.			A80-20443
Epidemiologic studies of microwave effect	s	TORONTO, A.	
	A80-21026	Synthesis and biological screening by now	el hybrid
SIMMONS, R.		fluorocarbon hydrocarbon compounds for	nse as
Visual performance: A method to assess w	orkload	artificial blood substitutes	-20 40
in the flight environment		[NASA-CA-162537]	N80-14689
	N80-14749	TSYBIZOV, G. G.	14007
SIMONOV, P. V.			
Psychophysiological monitoring of operato	or's	Hormonal regulation of calcium and phosph homeostasis during physical activity	OLUS
emotional stress in aviation and astron		nomeostasis during physical activity	
destronce served in directon and detion	A80-20449	TURBHAM, T.	A80-20684
STUCH D	100-20443		
SINGH, P. Study on the neuronal circuits implicated	l in	Toxic polypeptides and uremia	
postural tremor and hypokinesia	1 711	[PB-301063/4]	N80-15803
	NOO 15703		
	N80-15783	U	
SKRALY, J. A.		_	
The informational structure of DNA, RNA,	and amino '	OPSHER, P. J.	
acid seguences		Microbial colonization of materials at In	nisfail,
	A80-20856	Queensland	•
Information processes in the evolution of	protein		N 80-14670
synthesis		USHAKOV, A. S.	
	A80-20857	Effect of 1 alpha-hydroxy-cholecalciferol	and
SLONIE, A. D.		varying phosphorous content in the diet	
Temperature compensation of the metabolis	m of	calcium phosphorous metabolism in hypok	inetic rate
serotonin in the brain of hibernating m		farefareas mercaportem to withou	180-20445
	A80-18082		AUV-20443

SHITH, B. A.

Effect of peripherally presented visual signals on pilot performance during flight simulation
[AD-A073604] N80-14703

WADDEN, R.

	1	١
,	o	ļ

VALLUCHI-HORP, M. Effect of hypogravity on human lymphocyte activation A80-20446

Relationship among the 55 Hz bioelectric rhythm of the olfactory bulb, the bulb S-rhythm, and respiration

ARO-20211

VERIGO, V. V. Simulation of physiological systems in order to evaluate and predict the human condition in a space flight [NASA-TM-76016] N80-14716

VILLAMAR, H.
Kinematic analysis of osmotic processes under non-equilibrium conditions

NB0-14669

VOGT, W. G.
Modeling and simulation. Volume 10 - Proceedings of the Tenth Annual Pittsburgh Conference, University of Pittsburgh, Pittsburgh, Pa., April 25-27, 1979. Part 1 - Biomedical A80-20855

Temperature compensation of the metabolism of serotonin in the brain of hibernating mammals A80-18082

Body temperature and heart rate relationships during submaximal bicycle ergometer exercises

VOLZ, P. A.
Study of fungal phenotypes after exposure to space
flight parameters
A80-17986

VONBLUECHER, H.

PRG aircrew chemical defence assemblies N80-14737

VONWINTERFELDT, D. Are important weights sensitive to the range of alternatives in multiattribute utility measurement [AD-A073366]

VYBOH, P.
Influence of hypokinesis on physiological functions in fowl
[NASA-TM-75999] N80-15778

W

Health effects of aerosols emitted from an activated sludge plant
[PB-299583/5]
WALLGORA, J. H.
The physiological basis for spacecraft N80-14696 environmental limits [NASA-RP-1045] N80-15788 Thermal environment N80-15791 Physical forces generating acceleration, vibration, and impact N80-15792 WARD, S.

Process model of how the human operator tracks discontinuous inputs [AD-A069001] N80-14712 WEGER, N. P.

Therapy on nerve agent poisoning

Circadian rhythms of human performance and resistance: Operational aspects

N80-15808 Circadian rhythms in air operations N80-15816

WEITZMAN, D. O.
Proficiency maintenance and assessment in an instrument flight simulator

A80-19023 WEITZHAN, E. D. Sleep stage organization: Neuro endocrine relations NRA-15809 Biological rhythms of man living in isolation from time cues N80-15813

WHALEY, P. W. Static acoustic impedance profiles in auditory diagnosis [ASME PAPER 79-WA/BIO-1] A80-18643 WHEDON, G. D. A study of metabolic balance in crewmembers of

Skylab IV

WIERWILLE, W. W.
Aircrew workload assessment techniques

WIGHT, J. L. Waste stabilization lagoon microorganism removal efficiency and effluent disinfection with chlorine [PB-300631/9] N80-15786

N80-14746

WILLIAMS. D. H. Some human factors issues in the development and evaluation of cockpit alerting and warning systems [NASA-RP-1055] N80-15821

WILLIGES, R. C.
Aircrew workload assessment techniques

N80-14746 WILSON, P. H., JR.
Serum cholesterol levels in selected Air Force cadets compared with levels in the West Point

A80-20442 WILSON, H. R.
Nonlinear interactions in binocular vision

A80-20859 WOODS, R. R. Regenerative CO2 removal for PLSS application [NASA-CR-160419] N80-14718

YAVROUIAN, A. Synthesis and biological screening by novel hybrid fluorocarbon hydrocarbon compounds for use as artificial blood substitutes [NASA-CR-162537]

YEGOROV, A. D.

Results of medical studies during long-term manned flights on the orbital Salyut-6 and Soyuz complex [NASA-TM-76014] N80-15797

Z

ZHORZHOLADZE, T. K.

Practical criteria for analyzing the heart
hemodynamics of young athletes A80-20212

ZHURAVLEVA, Y. N. Changes of some blood indices and myocardial electrolyte content during hypokinesia [NASA-TR-75954] N80-15798

ZINGERMAN, A. M.
The effect of intiorthostatic stimuli on human operators studied using rheography data

Static acoustic impedance profiles in auditory

diagnosis [ASHE PAPER 79-WA/BIO-1] A80-18643 ZLATARRY, K.
Scientific biomedical studies during the flight of

the first Bulgarian cosmonaut A80-19100

ZORILE, V. I.

The effect of aircraft noise on the functional state of human operators A80-21039

I-30

1. Report No. NASA-SP-7011 (205)	2. Government Accession	on No.	3. Recipient's Catalog	No.
4. Title and Subtitle AEROSPACE MEDICINE AND BI		L	5. Report Date April 1980 6. Performing Organiza	ation Code
A Continuing Bibliography	(Supplement 2	05)	to. Performing Organiza	
7. Author(s)			8. Performing Organiza	tion Report No.
9. Performing Organization Name and Address			10. Work Unit No.	
National Aeronautics and Washington, D. C. 20546	Space Administ	ration	11. Contract or Grant	No.
12. Sponsoring Agency Name and Address			13. Type of Report and	d Period Covered
		<u> </u>	14. Sponsoring Agency	Code
15. Supplementary Notes			,	
	•			
16. Abstract				
This bibliography list introduced into the N system in March 1980.	NASA scientific	and technical	information	ziic\$
,				
}				
17. Key Words (Suggested by Author(s))		18. Distribution Statement		
Aerospace Medicine Bibliographies		Unclassif	ied - Unlimit	ed
Biological Effects		·		
			·	,
19. Security Classif. (of this report) Unclassified	20. Security Classif. (c Unclass		21. No. of Pages 70	22. Price* \$7.00 HC
<u> </u>			J	·

PUBLIC COLLECTIONS OF NASA DOCUMENTS

DOMESTIC

NASA distributes its technical documents and bibliographic tools to eleven special libraries located in the organizations listed below. Each library is prepared to furnish the public such services as reference assistance, interlibrary loans, photocopy service, and assistance in obtaining copies of NASA documents for retention.

CALIFORNIA

University of California, Berkeley

COLORADO

University of Colorado, Boulder

DISTRICT OF COLUMBIA

Library of Congress

GEORGIA

Georgia Institute of Technology, Atlanta

ILLINOIS

The John Crerar Library, Chicago

MASSACHUSETTS

Massachusetts Institute of Technology, Cambridge

MISSOURI

Linda Hall Library, Kansas City

NEW YORK

Columbia University, New York

OKLAHOMA

University of Oklahoma, Bizzell Library

PENNSYLVANIA

Carnegie Library of Pittsburgh

WASHINGTON

University of Washington, Seattle

NASA publications (those indicated by an "*" following the accession number) are also received by the following public and free libraries:

CALIFORNIA

Los Angeles Public Library San Diego Public Library

COLORADO

Denver Public Library

CONNECTICUT

Hartford Public Library

MARYLAND

Enoch Pratt Free Library, Baltimore

MASSACHUSETTS

Boston Public Library

MICHIGAN

Detroit Public Library

MINNESOTA

Minneapolis Public Library

MISSOURI

Kansas City Public Library

St. Louis Public Library

NEW JERSEY

Trenton Public Library

NEW YORK

Brooklyn Public Library

Buffalo and Erie County Public Library

Rochester Public Library

New York Public Library

OHIO

Akron Public Library

Cincinnati Public Library

Cleveland Public Library

Dayton Public Library

Toledo Public Library

TENNESSEE

Memphis Public Library

TEXAS

Dallas Public Library

Fort Worth Public Library

WASHINGTON

Seattle Public Library

WISCONSIN

Milwaukee Public Library

An extensive collection of NASA and NASA-sponsored documents and aerospace publications available to the public for reference purposes is maintained by the American Institute of Aeronautics and Astronautics, Technical Information Service, 555 West 57th Street, 12th Floor, New York, New York 10019.

EUROPEAN

An extensive collection of NASA and NASA-sponsored publications is maintained by the British Library Lending Division, Boston Spa, Wetherby, Yorkshire, England. By virtue of arrangements other than with NASA, the British Library Lending Division also has available many of the non-NASA publications cited in *STAR*. European requesters may purchase facsimile copy of microfiche of NASA and NASA-sponsored documents, those identified by both the symbols "#" and "*", from: ESA Information Retrieval Service, European Space Agency, 8-10 rue Mario-Nikis, 75738 Paris CEDEX 15, France.

National Aeronautics and Space Administration

Washington, D.C. 20546

Official Business
Penalty for Private Use, \$300

THIRD-CLASS BULK RATE

Postage and Fees Paid National Aeronautics and Space Administration NASA-451





POSTMASTER:

If Undeliverable (Section 158 Postal Manual) Do Not Retur

NASA CONTINUING BIBLIOGRAPHY SERIES

NUMBER	TITLE	FREQUENCY
NASA SP-7011	AEROSPACE MEDICINE AND BIOLOGY Aviation medicine, space medicine, and space biology	Monthly
NASA SP-7037	AERONAUTICAL ENGINEERING Engineering, design, and operation of aircraft and aircraft components	Monthly
NASA SP-7039	NASA PATENT ABSTRACTS BIBLIOGRAPHY NASA patents and applications for patent	Semiannually
NASA SP-7041	EARTH RESOURCES Remote sensing of earth resources by aircraft and spacecraft	Quarterly
NASA SP-7043	Energy sources, solar energy, energy conversion, transport, and storage	Quarterly
NASA SP-7500	MANAGEMENT Program, contract, and personnel management, and management techniques	Annually

Details on the availability of these publications may be obtained from:

SCIENTIFIC AND TECHNICAL INFORMATION OFFICE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Washington, D.C. 20546